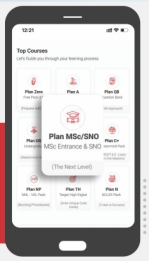
The Most Trusted Book for MSc Nursing Entrance/
PhD Entrance Exam/Faculty Entrance Exam

2 Get **Free** **MONTHS ACCESS** to

Plan **MSc Entrance Pack**

Read from Book, Practice from the App



For more details,
see Front Inside Cover

TARGET HIGH™

MSc Entrance

ONE NATION BOOK

for MSc Nursing/PhD Entrance/Faculty Entrance Exam

An Exclusive & Complete Coverage of all MSc Entrance Exams

Second COLORED Hybrid Edition *(Book+Digital)*

Special Focus on: Advanced Nursing Practice, Nursing Research, Nursing Administration, Nursing Education and Medical Surgical Nursing

Also Includes: All Nursing Subjects Synopses with Golden Points, MCQs with Rationale, Image-Based Questions, Clinical Case-Based Questions and Previous Years Papers of all the Central and State Level MSc Entrance/PhD Entrance/Faculty exams up to March 2024

An Exclusive & Complete Coverage of

All National & State Level Exams

AIIMS Mangalagiri (Associate Professor-Reader) 2024, RAK MSc Nursing 2023, J&K Board MSc Nursing Entrance 2023, AIIMS Mangalagiri (Associate Professor) 2023, AIIMS Bibinagar (Associate Professor) 2023, AIIMS Bibinagar (Nursing Tutor) 2023, AIIMS Deoghar (Nursing Tutor) 2022, Rajasthan University of Health Sciences MSc Nursing Entrance 2022, AIIMS Mangalagiri (Tutor/Clinical Instructor), August 2022 and many more

10 Reasons for referring to **Target High** MSc Entrance

- **10,000+** MCQs with Rationales
- **400+** Pages Synopses of all Subjects
- **3000+** Important Golden Points
- **30+** Previous Years Question Papers
- **50+** Clinical Case-Based Questions
- **200+** Image-Based Questions
- Reviewed by various State Level MSc Nursing Entrance Exam Toppers and Subject Expert Faculties
- Special emphasis on Advanced Nursing Practice, Nursing Research, Nursing Administration and Nursing Education Subjects
- The Only Book Authored by Most Renowned & Senior Faculty
- **Free Access to Paid Content of Plan MSc in Nursing Next Live App for Limited Period**

AIIMS

RAK

RUHS

AIIMS (Faculty)

INC (PhD)

IGNOU (PhD)

State MSc Exams

CBSPD
Dedicated to Education

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

CBS Publishers & Distributors Pvt. Ltd.

Muthuvenkatachalam S
Ambili M Venugopal

TARGET HIGH™

MSc Entrance

ONE NATION BOOK

for MSc Nursing/PhD Entrance/Faculty Entrance Exam

An Exclusive & Complete Coverage of all MSc Entrance Exams

Second COLORED Hybrid Edition *(Book+Digital)*

Special Focus on: Advanced Nursing Practice, Nursing Research, Nursing Administration, Nursing Education and Medical Surgical Nursing

Also Includes: All Nursing Subjects Synopses with Golden Points, MCQs with Rationale, Image-Based Questions, Clinical Case-Based Questions and Previous Years Papers of all the Central and State Level MSc Entrance/PhD Entrance/Faculty exams up to March 2024

An Exclusive & Complete Coverage of **All National & State Level Exams**

AIIMS Mangalagiri (Associate Professor-Reader) 2024, RAK MSc Nursing 2023, J&K Board MSc Nursing Entrance 2023, AIIMS Mangalagiri (Associate Professor) 2023, AIIMS Bibinagar (Associate Professor) 2023, AIIMS Bibinagar (Nursing Tutor) 2023, AIIMS Deoghar (Nursing Tutor) 2022, Rajasthan University of Health Sciences MSc Nursing Entrance 2022, AIIMS Mangalagiri (Tutor/Clinical Instructor), August 2022, AIIMS Mangalagiri (Lecturer) 2022, AIIMS Mangalagiri (Professor cum Principal) 2022, RAK MSc Nursing 2022, Chhattisgarh MSc Nursing 2022, AIIMS MSc Nursing 2022, WBUHS MSc Nursing 2022 and Many more

Muthuvenkatachalam Srinivasan
PhD (INC Consortium), MSc Nursing (AIIMS, New Delhi),
D Pharma RN (NMBA Australia)
Assistant Professor
College of Nursing
All India Institute of Medical Sciences (AIIMS)
Mangalagiri, Andhra Pradesh

Ambili M Venugopal
MSc Pediatric Nursing (AIIMS), BSc (Hons) Nursing (AIIMS)
Tutor/Clinical Instructor
All India Institute of Medical Sciences (AIIMS)
Mangalagiri, Andhra Pradesh

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

CBSPD
Dedicated to Education

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

CBS Publishers & Distributors Pvt Ltd

• New Delhi • Bengaluru • Chennai • Kochi • Kolkata • Lucknow • Mumbai
• Hyderabad • Jharkhand • Nagpur • Patna • Pune • Uttarakhand

ATTENTION READERS!

STOP PIRACY! PROMOTE ORIGINALITY!

Dear All

Target High MSc Entrance has been conceptualized and developed with a sole purpose of benefitting the thousands of MSc Nursing aspirants across the country by providing them a one-stop solution to everything they need to excel. Authors, publisher and everyone associated with this project aimed to channelize your efforts with this book so as to save your time and money you invest in referring to various different resources for the same information.

However, it has come to our notice that widespread illegal distribution of photocopies and PDFs is already taking place in the market. We would like to acquaint you with the fact that Indian Reprographic Rights Organization (IRRO), a copyright society registered under the Copyright Act, permits only up to 15% of a copyrighted work to be reproduced. Also, the usage should be noncommercial and nonprofitable. Photocopying the whole book/uploading PDFs or images of the book without the due permission of authors or publisher is punishable under the Copyright Act as it weighs against the fair use policy. Copying and distributing the complete work online and physically for free, would hinder the economic viability of creating and maintaining the source.

We are aware of the resources from where these practices are emerging and coming into existence. In case, anyone of you come across such practice going around you, please reach us at +91 9555353330 or bhupesharora@nursingnextlive.in. We would take strict legal actions against the alleged person/persons without any prior notice. If your information is found genuine, we will also reward you. Please note that in this whole process, we assure that your identity would be kept confidential.

Piracy and infringement lead to demotivation of the author and publishing fraternity as a whole. If the same content would be circulated all the time, there would be no new original work and hence, the growth in knowledge propagation would be hampered considerably. Therefore, in interest of everyone, let's stop this illegal practice of piracy and give due respect to the intellectual creation.

Today it's someone else's work! Tomorrow it could be Yours!

Publisher

Reviewer's List



Arshid Nazir Shah

PhD Scholar, MSc (Pediatrics)
Assistant Professor
Govt. Nursing College
Baramulla, Kashmir



Jayashree Siddharth Jadhav

MSc (N), Speciality (OBG)
Assistant Professor
Godavari College of Nursing
Jalgaon, Maharashtra



N Adlin Shinija

MSc (MSN), PhD
Principal
Annammal College of Nursing
Kuzhithurai, Kanyakumari
Tamil Nadu



Pooja Dhasmana

MSc (Mental Health Nursing)
Assistant Professor
Scope College of Nursing
Raipur, Chhattisgarh



Priyanka Chaudhary

MSN, PhD
Associate Professor
Akal College of Nursing
Eternal University
Baru Sahib Sirmour
Himachal Pradesh



Rashmi Vishwas Tembhurne

BSc (N), MSc (N), Speciality (MSN) (Neuroscience)
Lecturer
Godavari College of Nursing
Jalgaon, Maharashtra



Sheela Shenai

MSc (CHN), PhD
Principal
Malankara Orthodox Syrian Church (MOSC) Medical College of Nursing
Kolenchery, Ernakulam, Kerala



Subhash Chand Gupta

MSN, DHM, CCC, PhD
Nursing Officer
Institute of Human Behaviour and Allied Sciences (IHBAS)
New Delhi



Thanuja Malepati

BSc, MSc (OBG)
Lecturer
KKC College of Nursing
Tirupati, Andhra Pradesh

Nursing Knowledge Tree
e by CBS Nursing Division

The names of the reviewer's are arranged in an alphabetical order.

Preface

Chanakya affirmed, "Health is our real asset, and real wealth. Without good health, you cannot move forward. It is like dragging a car forward without fuel."

It is true to a great extent as without a good health, it's not possible to live a normal life. We must have a sound health in order to excel in each area of life, and this is what the Government of India thinks as well. To keep the target of providing good health, the Government needs an efficient and knowledgeable health care force. The nurses are an integral part of this force and play a vital role in health care system. After bachelor degree in nursing, the aspirants go for master's degree that is MSc in Nursing. Many students think that the entrance exam for MSc nursing is very tough and only the scholars can get through it. However, it is not true and any students can pass the entrance exam, provided targeted preparatory material is made available to him or her. This book is conceptualized to provide the best source for the preparation of the competitive exam and then get admission in MSc and boost the career graph.

We have realized that it is the need of the hour to come out with a compact book for the MSc aspirants. There is no dearth of books in the market related to this exam but quality books are lacking. Just like any other exam, MSc Entrance Exam too needs serious preparation and devoted study. Keeping this fact in mind, we have presented the book, 'TARGET High MSc Entrance' which is a panacea for all your troubles related to this exam. It contains the materials which are prepared exclusively for the MSc exam. The study of this book will enable you to crack this exam and make your success guaranteed. We are saying this with conviction because this book has been presented before you after doing extensive research, and many subject experts have put in hard labor while molding and shaping this book exclusively for the MSc exam.

The book "Target High MSc Entrance" has two sections. Section A has Synopsis followed by Topic wise explained MCQs and Section B has Previous Years' Papers of all the important state level examinations. In this 2nd edition of book, content is thoroughly revised and updated. Latest papers up to 2024 have been covered in the beginning of book for quick access to the latest paper.

With this book, we are continuing our legacy of bringing out the best for you. We understand our responsibilities toward our esteemed readers and that is why, as usual, we have come up once again with a book which has an edge over any other MSc Entrance Exam book available in the market.

Our success lies in your success!

Muthuvenkatachalam Srinivasan
Ambili M Venugopal

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

Acknowledgments

Thanking the Almighty for His immense blessings!!!

With humility we acknowledge our indebtedness to all. Writing a book is harder than we thought and more rewarding than we could have ever imagined. None of this would have been possible without your support. Now with the blessing and support from all of you, we are presenting our new member of Target High Series, i.e., Target High MSc Entrance keeping in mind the need and demand of time.

From the inception, with profound love, we owe sincere gratitude to our parents, siblings and daughters for their unconditional love, support, understanding and forbearance throughout all ups and downs in the journey of this book.

Our teachers deserve the credit for the gift of their guidance, invaluable suggestions, constructive criticism and perpetual inspiration, which inspired us in our difficult time, kept us motivated and enabled us to complete this book.

We are forever grateful to our teacher, mentor and a great motivator **Dr. Sandhya Gupta, Former Professor cum Principal, College of Nursing, AIIMS, New Delhi** for inspiring and inculcating confidence to write a book. We want to thank **Dr Latha Venkatesan**, Professor cum Principal College of Nursing, AIIMS Delhi for her constant support and encouragement in this endeavor.

Words fail to express our gratitude to **Dr Ratna Prakash**, Principal, Pal College of Nursing, Haldwani, Uttarakhand for her constant support and encouragement on initiating this book. We are fortunate to have her in our path.

We wish to express our sincere gratitude and regards to all those, who have contributed appropriate and relevant information. Without their dedication, this endeavor might not have been possible.

It will be incomplete without mentioning the role of our beloved students, who have always been our well-wishers, constant supporters and source of learning and encouragement.

We would like to thank **Mr Satish Kumar Jain** (Chairman) and **Mr Varun Jain** (Managing Director), M/s CBS Publishers and Distributors Pvt Ltd for providing us the platform for bringing out the book. We have no words to describe the role, efforts, inputs and initiatives undertaken by **Mr Bhupesh Arora** [Sr. Vice President – Publishing & Marketing (Health Sciences Division)] for helping and motivating us.

We sincerely thank the entire CBS team for bringing out the book with utmost care and attractive presentation. We would like to thank Ms Nitasha Arora (Publishing Head and Content Strategist – Medical and Nursing), Ms Daljeet Kaur (Assistant Publishing Manager) and Dr Anju Dhir (Product Manager and Medical Development Editor) for their editorial support. We would also extend our thanks to Mr Shivendu Bhushan Pandey (Sr. Manager and Team Lead), Mr Ashutosh Pathak (Sr. Proofreader cum Team Coordinator) and all the production team members for devoting laborious hours in designing and typesetting the book.

We are thankful to our colleagues who helped us to formulate ideas when they did not even know that they were helping. Their involvement has triggered and nourished our intellectual maturity. Once again, we express our heartfelt gratitude to the unstinting support given by our friends and everyone in our team.

Finally, we would like to thank everybody who has contributed to the successful realization of this book. We apologize if we missed anyone's name, which we assure is completely inadvertent.

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

CBS Nursing Knowledge Tree

Extends its Tribute to

Florence Nightingale

For glorifying the role of women as nurses,
For holding the title of " The Lady with the Lamp,"
For working tirelessly for humanity–
Florence Nightingale will always be
remembered for her
selfless and memorable services to the
human race.





Florence Nightingale
(May 1820 – August 1910)

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

From Publisher's Desk

Dear Reader,



Nursing Education has a rich history, often characterized by traditional teaching techniques that have evolved over time. Primarily, teaching took place within classroom settings. Lectures, textbooks, and clinical rotations were the core teaching tools; and students majorly relied on textbooks by local or foreign publishers for quality education. However, today, technology has completely transformed the field of nursing education, making it an integral part of the curriculum. It has evolved to include a range of technological tools that enhance the learning experience and better prepare students for clinical practice.

As publishers, we've been contributing to the field of Medical Science, Nursing and Allied Sciences and earned the trust of many. By supporting **Indian authors**, coupled with **nursing webinars and conferences**, we have paved an easier path for aspiring nurses, empowering them to excel in national and state level exams. With this, we're not only enhancing the quality of patient care but also enabling future nurses to adapt to new challenges and innovations in the rapidly evolving world of healthcare. Following the ideology of **Bringing learning to people instead of people going for learning**, so far, we've been doing our part by:

- Developing quality content by qualified and well-versed authors
- Building a strong community of faculty and students
- Introducing a smart approach with Digital/Hybrid Books, and
- Offering simulation Nursing Procedures, etc.

Innovative teaching methodologies, such as modern-age Phygital Books, have sparked the interest of the Next-Gen students in pursuing advanced education. The enhancement of educational standards through **Omnipresent Knowledge Sharing Platforms** has further facilitated learning, bridging the gap between doctors and nurses.

At Nursing Next Live, a sister concern of CBS Publishers & Distributors, we have long recognized the immense potential within the nursing field. Our journey in innovating nursing education has allowed us to make substantial and meaningful contributions. With the vision of strengthening learning at every stage, we have introduced several plans that cater to the specific needs of the students, including but not limited to **Plan UG** for undergraduates, **Plan MSc** for postgraduate aspirants, **Plan FDP** for upskilling faculties, **SDL** for integrated learning and **Plan NP** for bridging the gap between theoretical & practical learning. Additionally, we have successfully completed seven series of our **Target High** Book in a very short period, setting a milestone in the education industry. We have been able to achieve all this just with the sole vision of laying the foundation of diversified knowledge for all. With the rise of a new generation of educated, tech-savvy individuals, we anticipate even more remarkable advancements in the coming years.

We take immense pride in our achievements and eagerly look forward to the future, brimming with new opportunities for innovation, growth and collaborations with experienced minds such as yourself who can contribute to our mission as Authors, Reviewers and/or Faculties. Together, let's foster a generation of nurses who are confident, competent, and prepared to succeed in a technology-driven healthcare system.

Nursing Knowledge Tree
An Initiative by CBS Nursing Division



Mr Bhupesh Aarora
(Sr Vice President – Publishing & Marketing)
bhupeshaarora@cbspd.com| +91 95553 53330

Contents

Preliminary Pages

Reviewer's List *v*
Preface *vii*
Acknowledgments *viii*
Recent Papers 2024–2022
AIIMS Mangalagiri (Associate Professor-Reader) 2024 *xix*
RAK MSc Nursing 2023 *xxiv*
J&K Board MSc Nursing Entrance 2023 *xxx*
AIIMS Mangalagiri (Associate Professor) 2023 *xxxv*
AIIMS Bibinagar (Associate Professor) 2023 *xxxix*
AIIMS Bibinagar (Nursing Tutor) 2023 *xliv*
AIIMS Deoghar (Nursing Tutor) 2022 *xlviii*
Rajasthan University of Health Sciences MSc Nursing Entrance 2022 *liii*
Clinical Case-Based Questions
(Fundamentals of Nursing) *lix*
(Medical Surgical Nursing) *lxiii*
(Psychiatric Nursing) *lxix*
(Obstetric and Gynecological Nursing) *lxxiii*
(Pediatric Nursing) *lxxvi*

Section A

Subject Wise Synopsis, IBQs & MCQ's

Nursing Research

Synopsis

Introduction 3
Definition 3
Steps in the Quantitative Research Process 3
Steps in the Qualitative Research Process 3
Research Process 3
Review of Literature 4
Literature Search in PubMed 4
Objectives 5
Hypothesis 6
Research Designs 6
Non-Experimental or Observational Research Designs 9
Cross Sectional vs Longitudinal Research Designs 10
Mixed Method Research 11
Risk of Bias in Research 11
Internal and External Validity of a Research Study 12
Major Types of Data Collection Methods 13
Sample and Sampling Technique 15
Ethics in Research 17
Reporting Guidelines for Research 17
Plagiarism in Research 18
Ghost Writing 18
Data Analysis and Interpretation 18
Numerical Data Properties and Measures 20
Histogram 22
Line Diagram 22
Pie Charts 22
Application of Inferential Statistics 23
Parametric and Non-Parametric Test 24
Parametric Tests 24
Non-Parametric Tests 24
Regression Analysis 26
Analysis of Qualitative Data 26
Qualitative Data Analysis Softwares 26

Multiple Choice Questions 28

Nursing Education

Synopsis

Education 57
Indian Nursing Council (INC) 59
Nursing Programs in India 59
Nursing Education in India 60
International Council of Nurses (ICN) 60
State Nursing Councils in India 60
Trained Nurses Association of India (TNAI) 60
Curriculum 60
Master Plan 61
Course Plan 61
Unit Plan 61
Lesson Plan 61
Format of Lesson Plan 62
Educational Objectives 62
Audio-Visual Aid 63
Maxims of Teaching 64
Pedagogy vs Andragogy 64
Principles of Teaching 64
Evaluation 66
Formula to Calculate Difficulty and Discrimination Index of an Item 67
Educational Learning Theories 69
Innovative Methods of Teaching 69
Simulation in Clinical Nursing Education 71
Guidance and Counseling 71
Continuing Nursing Education (CNE) 71
In-Service Education 71
Johari Window 72
Accreditation in Higher Education 72
National Education Policy (2020) 72

Multiple Choice Questions 74

Nursing Administration

Synopsis

Nursing Management 85
Nursing Administration 87
Management Theories 87
Bureaucracy or Organizational Theories 88
Motivational Theories 88
Legal and Ethical Issues in Nursing 89
Quality Assurance and Management in Nursing 90
Nursing Audit 92
Regulatory Bodies 92
Accreditation 93
Planning 95
Project Management Tool 96
Decision Making 96
Problem Solving 97
Organization 97
Coordination 100
Conflict Resolution 100
Staffing 101
Job Analysis 103
Discipline and Grievance 103
Directing 104
Collective Bargaining 107
Group Dynamics 107
Material Management 108
Budget 109

Multiple Choice Questions 111

Nursing Knowledge Tree
An Initiative for Nursing Diploma

Fundamentals of Nursing

Synopsis

History of Nursing 129
Nursing Education 129
Legal and Ethical Aspects in Nursing 129
Professional Values 130
Admission and Discharge 130
Nursing Process 131
Documentation and Reporting 132
Vital Signs 132
Health Assessment 135
Types of Nursing Modalities 140
Medical and Surgical Asepsis—Terminologies 141
Basic Principles of Surgical Asepsis 141
Methods of Sterilization and Disinfection 144
Specimen Collection 145
Comfort Devices 148
Bed Making 148
Personal Hygiene 149
Care of Skin/Bathing 149
Back Massage 150
Chest Physiotherapy 150
Pressure Ulcers 151
Various Positions 153
Hot and Cold Application 153
Drug Administration 155
Basic Life Support 156
Oxygen Therapy 157
Key Nursing Roles in Important Procedures 159
Enema 160
Suture 160
Triage 161
Intravenous Fluid Administration Drop Rate Calculation 161
Insulin Syringe Preparation (Mixing Regular with NPH) 161
Hemoglobin 162
Coagulation Studies 162
Renal Function 163
Liver Function Test (Normal Values) 163
Pulmonary Function Test 163
Endocrine Function 163
Blood Sugar Profile 163
Cardiac Markers 164
Urine Routine and Microscopy 164
Cerebrospinal Fluid (CSF) 164
Neurological Values 164
Arterial Blood Gas Values (ABG) 164

Image-Based Questions 167

Multiple Choice Questions 169

Advanced Nursing Practice and Genetics

Synopsis

Nursing theories 205
Summary of Nursing Theories 205
Invasive and Non-invasive Ventilation Mode 209
Fluid and Electrolyte 209
Acid-Base Balance 213
Edema 213
Alternative Modalities of Care 213
Care of Death and Dying 214
Genetics 215
Common Genetic Disorders 221
Prenatal Diagnostic Genetic Testing 224
Genetic Counselling 225

Multiple Choice Questions 227

Medical Surgical Nursing/ Adult Health Nursing

Synopsis

Cardiovascular System 237
Anatomic and Physiologic Overview of Heart 237
Diagnostic Tests 241
Disorders of Cardiovascular System 245
Coronary Artery Diseases 246
Nursing Care of Patient Undergoing CABG (Coronary Artery Bypass Graft) 247
Other Diseases of Heart 248
Arterial Diseases 249
Hematology 251
Anatomy and Physiology of Hematologic System 251
Blood Groups and Blood Types 253
Blood Coagulation 254
Hematological Diseases and Disorders 254
Blood Transfusion 257
Critical Care Nursing 258
Stress 258
Shock 258
Anaphylaxis 260
Fluid Imbalances 260
Edema 261
Understanding Acid-Base Imbalance 261
Causes of Other Acid-Base Disorders 261
Electrolytes 262
Hemorrhage 262
Emergency Nursing - Prioritization of Care 263
Priorities of Care and Triage Categories 263
Common Equipment in Critical Care Area 263
Stages of Death and Dying (Kubbler Ross Stages of Dying) 265
Pain 265
Nervous System 266
Anatomy and Physiology of Nervous System 266
Classification of Nervous System 266
Assessment and Diagnostic Tests 271
Seizure Disorders 274
Stroke 275
Head Trauma/Head Injury 275
Spinal Cord injuries 277
Meningitis 277
Encephalitis 278
Brain Abscess 278
Multiple Sclerosis 278
Myasthenia Gravis 279
Guillain-Barré Syndrome 279
Trigeminal Neuralgia 279
Bell's Palsy 279
Parkinson's Disease 280
Alzheimer's Disease 280
Huntington's Disease 280
Amyotrophic Lateral Sclerosis (ALS) 280
Brain Tumor 280
Neurocysticercosis 281
Oncology 281
Cancer 281
Few Common Cancers 282
Bone Marrow Transplantation (BMT) 288
Renal System 288
Anatomy and Physiology of Renal System 288
Functions of Kidney 291
Investigations 292
Disorders of Renal System 293
Renal Transplant 298
Miscellaneous Urinary Diseases 298
Musculoskeletal System 299
Anatomy and Physiology of Musculoskeletal System 299
Classification of Bones 300
Review Points **300**
Anatomy of Bone 302
Types of Joints in Human Body 303
Vertebral Column 303
Diagnostic Evaluation 304

Nursing Knowledge Bank
An Initiative by CBS Nursing Division

Disorders of Musculoskeletal System 304
Orthopedic Surgeries 308
Crutches 309
Gout 309
Tendinitis 310
Bursitis 310
Osteoarthritis 310
Rheumatoid Arthritis 310
Osteomyelitis 311
Osteoporosis 311
Osteomalacia 311
Paget's Disease 311
Rhabdomyolysis 311
Spinal Column Deformities 311
Prolapsed Intervertebral Disc 312
Amputation of the Lower Extremity 312
Pott's Disease 313
Carpal Tunnel Syndrome 313
Disorders of Lower Limb 313
Gastrointestinal and Hepatobiliary System 314
Gastrointestinal System 314
Hepatic Biliary System 326
Inflammation 331
Wound Healing 332
Prevention and Care of Pressure Ulcer 332
Gangrene 332
Immune System 333
Ent System 333
Anatomy and Physiology of Eye 336
Integumentary System 340
Respiratory System 343
Endocrine System 346
Male Reproductive System 351
Preoperative Nursing Care 353
Intraoperative Period: Nursing Responsibility 354
Common Positions Used during Surgeries 354
Sutures 357
Surgical Needles 358
Image-Based Questions 372
Multiple Choice Questions 387

Pharmacology

Synopsis

Key Terminologies 511
Conversion Equivalence of Weight 512
Conversion Equivalence of Volume 512
Antimicrobial Agents 513
Cardiac Drugs 514
Drugs Acting on Central Nervous System 515
Sedative and Hypnotics 516
Anticonvulsants 516
Analgesics 517
Anti-Gout Agents 517
Sympathomimetic (Adrenergic) Drugs 517
Cholinergic Drugs 517
Drugs Affecting the Respiratory System 518
Drugs Acting on Gastrointestinal Tract 518
Insulin 518
Oral Hypoglycemic (Antidiabetic) Agents 519
Adrenocorticosteroids and Analogues 519
Thyroid Drugs 519
Antithyroid Drugs 519
Diuretics 520
Antitubercular Drugs 520
Anticancer Drugs 521
Anticoagulants 521
Thrombolytic Medications 521
Antiplatelet Drugs 521
Specific Antidotes against Poisoning 521
Diseases and Drugs of Choices 522
Adverse Effects of Some Common Drugs 523
Drug Safety during Pregnancy 523
Drug Safety during Breastfeeding 524
Image-Based Questions 527
Multiple Choice Questions 528

Community Health Nursing

Synopsis

Levels of Prevention 545
Health Care Delivery System in India 546
Health for All 547
National Health Mission (NHM) 548
Demographic Trends of India 550
Vital Statistics 551
Health Policy and Planning 553
Epidemiology 554
Stages of Infection 556
Immunity 557
Vaccinations and Vaccines 558
Cold Chain 560
National Immunization Schedule 561
Disease Transmission 562
Communicable Diseases 564
Food Poisoning 568
Sexually Transmitted Diseases (STDs) 568
HIV and Aids 569
Parasitic Infections 569
Zoonoses 570
Tuberculosis 570
Occupational Diseases 571
Contraceptive Methods 572
Perinatal Care 575
Nutrition and Health 577
Water Purification Methods 578
International Health Organizations 578
Disaster Management 579
Recent High Impact Viral Diseases 580
Important Tables and Charts 581
Image-Based Questions 590
Multiple Choice Questions 592

Psychiatric Nursing

Synopsis

Introduction 625
Mental Health 625
Mental Illness 625
Theories of Personality Development 625
Defense Mechanism 627
Phases of Nurse-Patient Therapeutic Relationship 628
Neurotransmitters 629
Psychosocial Therapies 629
ICD 10 Classification of Psychiatric Disorders 631
ICD 11 Key Features 631
General Psychopathology 631
Organic Mental Disorders 633
Substance Use Disorders 634
Schizophrenia 635
Mood Disorders 636
Somatoform Disorders 637
Personality Disorders 637
Stress and Adaptation 638
Phobia 638
Obsessive Compulsive Disorder (OCD) 640
Adjustment Disorder 640
Eating Disorders 640
Sleep Disorders 640
Seasonal Affective Disorder (SAD) 641
Sexual Disorders 641
Attention Deficit Hyperactive Disorder (ADHD) 641
Mental Retardation (Intellectual Disability) 641
Learning Disabilities and Disorders (Specific Learning Disorder) 642
Electroconvulsive Therapy (ECT) 642
Psychopharmacology 643
Deaddiction Drugs/Antabuse Drugs 645

Nursing Knowledge Tree
An Initiative by CNS Nursing Digest

National Mental Health Programme (NMHP) 645
Crisis and Crisis Intervention 645
Glossary of Common Terminologies 646
Image-Based Questions 652
Multiple Choice Questions 653

Obstetric and Gynecological Nursing

Synopsis

Anatomy of Female Reproductive System 677
Anatomy of Breast 679
Menstrual Cycle 679
Fundamentals of Reproduction 680
Principal Events of Embryonic and Fetal Development 681
The Placenta and Fetal Membranes 682
Umbilical Cord 682
Amniotic Fluid 682
Fetal Circulation 683
Anatomy and Types of Female Pelvis 683
Fetal Skull 685
Assessment 686
Physiological and Emotional Changes during Prenatal Period 686
Diagnosis/Signs of Pregnancy 687
Estimation of EDD and Gestational Age 688
Screening Tests during Pregnancy 688
Antenatal Assessment of Fetal Well-Being 689
Fetus in utero (Lie, Presentation and Position) 689
Abdominal Examination (Leopold Maneuver) 691
Different Positions and Presentations during Labor 691
Normal Mechanism of Labor 693
Partograph 694
Pharmacology in OBG 694
Maternal Analgesia 694
Assisted Deliveries 695
Operative OBG 696
Postpartum Nursing Care 697
Common Disorders of Pregnancy 697
Common Gynecological Disorders 704
HIV in Pregnancy 705
Gonorrhea, Syphilis and Pelvic Inflammatory Disease 706
Cervical Cancer Screening 706
Anemia in Pregnancy 706
GTPAL 707
Image-Based Questions 714
Multiple Choice Questions 717

Pediatric Nursing

Synopsis

Growth and Development 739
Growth Chart 741
Developmental Milestones in First Two Years of Life 741
Theories of Growth and Development 742
Essential Newborn Care 742
Kangaroo Mother Care (KMC) 744
High Risk Newborn 745
Newborn Resuscitation 745
Common Respiratory Conditions in Newborns 746
Feeding in Children 746
Jaundice 747
Neonatal Care 748
Birth Injuries 748
Integrated Management of Neonatal and Childhood Illness (1995) 749
Baby-Friendly Hospital Initiative 750
Child Welfare Programs 750
Child Welfare Milestones 750
Types of Play among Children 751
Protein Energy Undernutrition 751
Respiratory Disorders 752
Disorders of GI System 753
Umbilical Cord Anomalies 757
Disorders of Hepatic System 757
Disorders of Cardiovascular System 758
Disorders of Genitourinary System 760
Disorders of Central Nervous System 762
Orthopedic Problems in Children 763
Disorders of Eye 767
Pediatric Emergency 767
Genetic Disorders 769
Behavioral Disorders in Children 769
Challenged Children 769
Drugs in Pediatrics 769
Common Pediatric Nursing Procedures 769
Image-Based Questions 776
Multiple Choice Questions 779

Biochemistry and Nutrition

Synopsis

Biochemistry 811
Introduction 811
The Cell 811
Transport Mechanisms 812
pH, Buffers and Acid-Base Balance, Acid Base Imbalance 813
Enzymes and Coenzymes 813
Carbohydrates 814
Lipids 815
Proteins 816
Vitamins, Minerals and Electrolytes 817
Vitamins: Functions, Sources and Deficiency Diseases 818
Nutrition 820
Calorie 820
Metabolism 820
Classification of Foods 820
Food Preservation Methods 820
Common Adulterants Used in Food Materials 821
Tests to Detect Common Adulteration 821
Multiple Choice Questions 822

Microbiology

Synopsis

Historical Perspectives of Microbiology 833
The Normal Bacterial Flora of Human Body 833
Staining Techniques 833
Types of Microscope 834
Culture Media 834
General Guidelines for Collecting Culture Specimen 835
Classification of Bacteria 835
Diagnostic Tests Done 836
Virus 837
Fungus 837
Parasites 837
Multiple Choice Questions 840

Introduction to Computer and Nursing Informatics

Synopsis

Basic Key Terms 849
History of Computers 849
Generations of Computers 849
Classification of Computers 850
Hardware and Software 850
Structure and Parts of Computer 850
Uses of Computers in Healthcare System 851
Computer Networking 854
Methods of Internet Access 854
Web/Internet Key Terminologies 855
Multiple Choice Questions 856

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

Section B

Previous Year Papers

1. AIIMS Mangalagiri Tutor/Clinical Instructor, August 2022 867
2. AIIMS Mangalagiri (Lecturer) 2022 872
3. AIIMS Mangalagiri (Professor cum Principal) 2022 876
4. RAK MSc Nursing 2022 880
5. Chhattisgarh MSc Nursing 2022 (Recall) 886
6. AIIMS MSc Nursing 2022 890
7. West Bengal University of Health Sciences MSc Nursing 2022 894
8. West Bengal University of Health Sciences MSc Nursing 2021 898
9. Rajasthan University of Health Sciences MSc Nursing 2021 902
10. North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences MSc Nursing 2021 906
11. Hemwati Nandan Bahuguna Uttarakhand Medical Education University MSc Nursing 2021 910
12. Rajasthan University of Health Sciences MSc Nursing 2019 916
13. Rajasthan University of Health Sciences MSc Nursing 2018 920

Papers in Nursing Next Live
(Under Target High Package)

14. RAK MSc Nursing 2018 *(In App)*
15. Rajasthan University of Health Sciences MSc Nursing 2017 *(In App)*
16. RAK MSc Nursing 2017 *(In App)*
17. Rajasthan University of Health Sciences MSc Nursing 2016 *(In App)*
18. Rajasthan University of Health Sciences MSc Nursing 2015 *(In App)*
19. Rajasthan University of Health Sciences MSc Nursing 2014 *(In App)*

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

"Health is the greatest of all possessions; a pale cobbler is better than a sick king."
—Isaac Bickerstaff



AIIMS MANGALAGIRI (ASSOCIATE PROFESSOR-READER) 2024

1. Philosophy that helps in training rules of conduct and focuses on the world of physical objects refers to:
a. Idealism b. Realism
c. Pragmatism d. Essentialism

2. According to Nodding's philosophy of caring education, the following refers to the practice of affirming and encouraging the best for all students.
a. Modeling b. Dialogue
c. Practice in caring d. Confirmation

3. An interpretation or conclusion about a patient's needs, concerns, or health problem and the decision to act (or not) to use or modify standard approaches, or to improvise new ones as deemed appropriate by the patient's response refers to:
a. Clinical assessment b. Clinical judgment
c. Evidence-based practice d. Clinical judgment

4. Which of the following answers the question, "How much?"
a. Assessment b. Evaluation
c. Measurement d. Summation

5. Which one of the components is not part of developing instructional objectives?
a. Teacher b. Learner
c. Behavior d. Condition

6. The verb "Show awareness of" best suits the which of the taxonomic domain?
a. Cognitive domain b. Affective domain
c. Psychomotor domain d. All of the above

7. In item analysis, when an equal number of high and low-scoring students answer the item correctly, then the index indicates:
a. Positively discriminating b. Negative discriminating
c. Nondiscriminating d. Both a and b

8. Grades in a 4-point system are as follows:
A = 4 points per credit B = 3 points per credit
C = 2 points per credit D = 1 points per credit
If a student took two 3-credit courses and one 6-credit nursing course and received an A in one of the 3-credit courses, a C in the other, and a B in the 6-credit course, the grade point average would be:
a. 3.0 b. 6.0
c. 7.5 d. 8.0

9. Which among the following is NOT one of the main components of emotional intelligence?
a. Empathy b. Social skill
c. communication d. Self-motivation

10. Which one of the following statements is correct?
a. A good clinical nurse can be a competent nurse educator.
b. Competence as a nurse educator cannot be achieved without practical experience.
c. Competence as a nurse educator will be enhanced if students learn the skill.
d. Higher qualification makes a competent nurse educator.

11. "A set of shared understandings and assumptions about reality and the world" defines which of the following?
a. Concept b. Conceptual framework
c. Practice discipline d. Paradigm

12. Person, environment, health, and nursing constitute the metaparadigm for nursing because they do which of the following?
a. Provide a framework for implementing the nursing process.
b. Can be utilized in any setting when caring for a client?
c. Can be utilized to determine the applicability of a research study?
d. Focus on the needs of a group of clients.

13. Although the patient refused the procedure, the nurse insisted and inserted a nasogastric tube in the right nostril. The hospital administrator decides to settle the lawsuit because the nurse is most likely to be found guilty of which of the following?
a. An unintentional tort b. Assault
c. Invasion of privacy d. Battery

14. You are obtaining an admission history, and you say, "As you were saying, you came to the hospital for …" This statement is an example of:
a. Redirecting b. Restating
c. Focusing d. Reflection

15. What part of health history identifies the source and reliability?
a. Biographical data b. Current health status
c. Chief complaint d. Past medical history

16. How would you distinguish pain from tenderness?
a. Tenderness occurs with palpation.
b. Tenderness is constant.
c. Tenderness occurs with or without palpation.
d. Tenderness is what the patient tells you it is.

17. Values, moral frameworks, and codes of ethics influence the professional nurse's moral decisions in which of the following ways?
a. The nurse will provide direct client care that is consistent with the nurse's values.
b. The nurse will seek to ensure that the client's values and the nurses are the same.
c. The choice of moral framework determines the client's outcome.
d. The nurse is bound to act according to the nurses' code of ethics even if the nurse's values are different.

18. Which of the following is an example of a primary prevention activity?
a. Antibiotic treatment of a suspected urinary tract infection.
b. Occupational therapy to assist a client in adapting his or her home environment following a stroke.
c. Nutrition counseling for young adults with a strong family history of high cholesterol.
d. Removal of tonsils for a client with recurrent tonsillitis.



Ans.

1. b
2. d
3. b
4. c
5. a
6. b
7. c
8. a
9. c
10. b
11. d
12. b
13. d
14. a
15. a
16. a
17. d
18. c

"Health is the greatest of all possessions; a pale cobbler is better than a sick king."

—Isaac Bickerstaff



RAK MSc NURSING 2023

1. Ritgen's maneuver is done:
a. Shoulder dystocia
b. For delivery of buttocks in breech presentation
c. For delivery of legs in breech presentation
d. For delivery of head in normal presentation

2. The abduction of upper extremities and extension of the arms by neonates followed by adduction on loud noises or sudden movements is:
a. Tonic neck reflex b. Moro reflex
c. Babinski reflex d. Dancing reflex

3. The basic needs of a neonate are:
a. Thermoregulation, nutrition, and protection from infections
b. Breastfeeding, thermoregulation and immunization
c. Breastfeeding, immunization and hygiene
d. Nutrition, hygiene and immunization

4. While beginning neonatal resuscitation, the first action should be:
a. Start chest compressions
b. Dry and cover the neonate
c. Check APGAR
d. Follow ABC approach

5. Following birth and after obliteration, the umbilical vein forms:
a. Ligamentum teres b. Ligamentum venosum
c. Ligamentum arteriosum d. Umbilical ligaments

6. Physiological jaundice of the newborn:
a. Is an unconjugated hyperbilirubinemia
b. Is more common in term infants
c. Usually appears with 12 hours of life
d. Is generally associated with moderate anemia

7. Hypoglycemia in a term infant is defined as blood glucose level below:
a. 20 mg/dL b. 40 mg/dL
c. 30 mg/dL d. 50 mg/dL

8. Cephalohematoma can be differentiated from caput succedaneum by:
a. Normal neurological examination
b. Normal lumbar puncture
c. Limitation of swelling to the area over one bone
d. Absence of a history of prolonged labor

9. The most important factor predisposing to infantile respiratory distress syndrome is:
a. Cold stress b. Prematurity
c. Hypoglycemia d. Hypocalcemia

10. A young infant when compared to an adult in terms of body proportion, has:
a. A large head and trunk
b. A large head and neck
c. A smaller neck and trunk
d. A smaller trunk and legs

11. On palpation of the fetal head, the anterior fontanel usually feels closed:
a. By three months
b. Between three and nine months
c. Between nine and eighteen months
d. Between eighteen and twenty-four months

12. NADA's criteria are used for:
a. Assessment of child for degree of dehydration
b. Assessment of child for degree of malnutrition
c. Assessment of child for presence of heart disease
d. Assessment of child for degree of mental retardation

13. A 6-month-old infant differs from 3-month-old in regard to his/her ability to:
a. Crawl
b. Smile socially
c. Sit, or almost sit, without assistance
d. Walk holding on to furniture

14. Neural tube defects are prevented by:
a. Pyridoxine b. Folic acid
c. Thiamine d. Iron

15. The feeding of honey to infants less than six months of age has been associated with:
a. Hypoglycemia b. Hyperglycemia
c. Jaundice d. Infantile botulism

16. A child in preicteric phase of hepatitis A most likely will exhibit:
a. Fever, rash and diarrhea
b. Anorexia, fever and vomiting
c. Fever, coma and convulsions
d. Headache, hepatosplenomegaly and clay-colored stools

17. Meconium aspiration syndrome is usually associated with:
a. Tracheoesophageal fistula b. Congenital heart disease
c. Neonatal meningitis d. Fetal distress

18. The use of a blood pressure cuff that covers one half of the length of the upper arm in children:
a. Is appropriate for below five years of age
b. May give a high reading
c. May give a low reading
d. May cause pain and discomfort

19. The most common presentation of congenital aganglionic megacolon (Hirschsprung's disease) in the neonate is:
a. Sepsis b. An abdominal mass
c. Diarrhea d. Intestinal obstruction

20. Frequent blood transfusions are required for the routine treatment of:
a. Thalassemia minor b. Thalassemia major
c. Sickle cell anemia d. G6PD deficiency

21. Positive Kernig's and Brudzinski's signs indicate presence of:
a. Meningitis b. Encephalitis
c. Glomerulonephritis d. Hepatitis



Ans.

1. a
2. b
3. a
4. b
5. b
6. c
7. b
8. c
9. b
10. b
11. d
12. a
13. c
14. b
15. d
16. b
17. d
18. c
19. a
20. c
21. a

Nursing Knowledge Tree
An Initiative by CBS Nursing

"It is health that is real wealth and not pieces of gold and silver."
—Mahatma Gandhi



AIIMS BIBINAGAR (ASSOCIATE PROFESSOR) 2023

1. Which of the following is a common disorder for a child with cushing syndrome?
a. Respiratory acidosis b. Metabolic alkalosis
c. Metabolic acidosis d. Respiratory alkalosis

2. All of the following statements are true about SIADH lab values; except:
a. SIADH causes increased urine osmolarity
b. SIADH causes elevated urine sodium concentration
c. SIADH causes decreased plasma osmolarity
d. SIADH causes increased plasma osmolarity

3. What is the diagnosis code of dual-role transvestism in ICD-10?
a. F 64.3 b. F 64.2
c. F 64.0 d. F 64.1

4. Self-care deficit theory was developed by:
a. Betty Neuman b. Florence Nightingale
c. Virginia Henderson d. Dorothea Elizabeth Orem

5. Maternal administration of magnesium sulfate for longer than 5–7 days during pregnancy leads to:
a. Fetal hypocalcemia b. Fetal hypokalemia
c. Maternal hypertension d. Maternal seizures

6. Which of the following is an important role of a nurse in milieu therapy?
a. Helps in attitude therapy
b. Helps in assisting ECT or other brain stimulation therapy
c. Helps to manage the environment
d. Helps in assisting Eye Movement Desensitization and Reprocessing (EMDR) therapy

7. Intracranial herniation that occurs when brain tissue is displaced under the falx cerebri is called:
a. Uncal herniation b. Subfalcine herniation
c. Disk herniation d. Inguinal herniation

8. Which of the following is a false statement regarding Ayushman Bharat?
a. Only two members in a family are eligible for this scheme.
b. It is the world's largest health insurance/assurance scheme fully financed by the government.
c. It provides a cover of ₹5 lakh per family per year for secondary and tertiary care hospitalization across public and private empanelled hospitals in India.
d. It covers up to 3 days of prehospitalization and 15 days posthospitalization expenses such as diagnostics and medicines.

9. Which of the following tests is used to detect deep vein thrombosis?
a. D-dimer test
b. Immunosorbent assay
c. ELISA test
d. Widal test

10. Arteriovenous malformation causes pain, bleeding or ulcers in which stage of Schöbinger staging system?
a. Stage I (quiescence) b. Stage III (destruction)
c. Stage II (expansion) d. Stage IV (decompensation)

11. Which of the following is the main cause of hypercalcemia?
a. Decreased parathyroid hormone (PTH)
b. Decreased antidiuretic hormone (ADH)
c. Increased antidiuretic hormone (ADH)
d. Increased parathyroid hormone (PTH)

12. A planned learning experience provided by employing an agency for the improvement of employees is known as:
a. Career planning b. Democratic management
c. In-service education d. Job description

13. Which type of leadership style is the least intrusive and ensures that the decision-making authority lies with the team members?
a. Democratic leadership b. Strategic leadership
c. Autocratic leadership d. Laissez-faire leadership

14. Ankylosing spondylitis leads to:
a. Inflammation of the spine
b. Inflammation of the sacrum
c. Inflammation of the coccyx
d. Inflammation of the xiphisternum

15. Ms Pavithra, a full term primigravida mother with labor pain got admitted for safe confinement. On PV examination it was revealed that small part of the head was below the brim of the pelvis and could be lifted out of the pelvis with a deep pelvic grip. What was the descent and engagement of the fetal head?
a. 3/5 b. 4/5
c. 2/5 d. 1/5

16. Which of the following is not a cause of Systemic Lupus Erythematosus-SLE?
a. Vitamin deficiency b. Immunological factor
c. Environmental factor d. Genetic factor

17. Which of the following is a multi-dimensional pain assessment tool with three main components as sensory intensity, the cognitive evaluation of pain and the emotional impact of pain?
a. Visual Analog Scale (VAS)
b. McGill Pain Questionnaire(MPQ)
c. FLACC scale
d. Numeric Rating Scale (NRS)

18. All of the following are the advantages of a Gantt chart; except:
a. Helps to unsplit the activities by status of the task
b. Helps to schedule the tasks with start date and end date
c. Helps to understand the percentage of work or tasks remaining
d. Helps to understand the percentage of task completion



Ans.

1. b
2. d
3. d
4. d
5. a
6. c
7. b
8. a
9. a
10. b
11. d
12. c
13. d
14. a
15. b
16. a
17. b
18. a

Nursing Knowledge Tree

"Ill-health of body or of mind, is defeat. Health alone is victory."
—Thomas Carlyle

Clinical Case-Based Questions (Fundamentals of Nursing)



#1

Raghav is working in critical care area as Registered Nurse. He was providing bed bath to his client. While cleaning the lower extremities he uses long, firm strokes from the distal to the proximal areas. He does this:

a. To increase the range of motion in the extremities and to prevent foot drop
b. Because proximal area is cleaner than the distal area of the extremities
c. To increase venous return and to prevent venous stasis
d. To assess the skin integrity

Ans. (c) To increase venous return and to prevent venous stasis

Explanation: Wash the lower limbs from distal to proximal with long, gentle strokes. Washing from distal to proximal may help to promote venous return. In massage, effleurage is a technique in which the masseur's hand is moved from distal to proximal limb to enhance the venous return and lymphatic flow.

#2

Nurse Sheela is caring a patient who has difficulty in falling asleep at night. She is aware that the following interventions will help the patient to fall asleep; EXCEPT:

a. Provide a warm glass of milk before the bed time
b. Turn on quiet music in patient's room
c. Provide back massage to the client
d. Encourage short nap after lunch.

Ans. (d) Encourage short nap after lunch.

Explanation: It is normal to feel a little sleepy after eating lunch. However, sleeping after lunch may lead to difficulty in falling asleep at night. Warm glass of milk before the bedtime, listening to quiet music of patient's choice and back massage promote sleep.

#3

Nurse Shalini is educating her client regarding the collection of sputum for culture and sensitivity. Which among the following statement by the client indicates that teaching was effective?

a. Collect sputum in a wide-opened mouth sterile container
b. Collect sputum in the morning after rinsing with mouthwash
c. Collect sputum in a plastic container and cover it with plastic wrap to prevent contamination
d. Collect sputum at bed time after taking prescribed medications

Ans. (a) Collect sputum in a wide-opened mouth sterile container

Explanation: The best quality sample is usually obtained early in the morning upon rising. Mouth should be rinsed out with water or saline prior to collection (not with mouthwash). Food should not be ingested for 1–2 hours prior to collection. It is very important that the sputum is the material coughed up from the lungs, and not saliva "spit". For culture and sensitivity, the sputum must be collected in a sterile container. Collection of sputum at bed-time after taking medications is not recommended.

#4

A client with IV line in situ for the last 72 hours is complaining of swelling and pallor at the site. These signs indicate:

a. Phlebitis
b. Infection
c. Infiltration
d. Dislodgement

Ans. (c) Infiltration

Explanation: Infiltration is a complication IV line. When IV fluids or medications leak into the surrounding tissue, it is known as infiltration. It is caused by improper placement or dislodgment of the catheter. Manifestations include redness around the site, swelling, puffy or hard skin around the site, blanching (lighter skin around the IV site), pain or tenderness around the site, IV not working, cool skin temperature around the IV site or of the scalp, hand, arm, leg or foot near the site.

#5

Nurse Ramya is preparing Inj. Augmentin to administer. While diluting this medicine, to ensure complete dilution nurse should:

a. Warm the diluents
b. Shake medicine vial vigorously
c. Roll the vial between the palm
d. After adding diluents keep the vial as it is

Ans. (c) Roll the vial between the palm

Explanation: After reconstituting powdered form of medication with saline or water, for reconstitution it should be rolled between palms. It should not be shaken vigorously.

#6

Nurse is preparing inj. Insulin for her client. Which among the following statement is correct?

a. Two types of insulin should not be mixed
b. Draw up regular insulin, then NPH insulin
c. Draw up long-acting insulin then short acting insulin
d. Use two separate syringes to administer different types of insulin

Ans. (b) Draw up regular insulin, then NPH insulin

Nursing Knowledge Hub
An Initiative by CBS Nursing Division

"Better ten times ill than one time dead."
—Yiddish

Clinical Case-Based Questions (Obstetric and Gynecological Nursing)



#1

Primigravida mother Lucy is on active labor and decided to undergo analgesia. Nurse explained various types of anesthesia available, and client decided to take bilateral pudendal block. After this analgesia, the body part affected is:

a. Abdomen
b. Back
c. Perineum
d. Lower legs

Ans. (c) Perineum

Explanation: In pudendal block, local anesthetic is injected into the pudendal canal where the pudendal nerve is located. This allows quick pain relief to the perineum, vulva, and vagina. In spinal anesthesia and epidural anesthesia, body below the part of injection is numbed such as abdomen and lower legs.

#2

A primigravida mother with 16+ 5 weeks of period of gestation is diagnosed with placenta previa. She asked the nurse what the management for this condition is, the most appropriate response from the nurse is:

a. Immediate cesarean section
b. Abortion to safeguard mother's life
c. Blood transfusion
d. Activity restriction and bed rest

Ans. (d) Activity restriction and bed rest

Explanation: Placenta previa is a condition in which placenta covers all or part of the cervix. This condition is one of the causes for antepartum hemorrhage. Bleeding usually occurs in the third trimester as uterus thins to prepare for delivery. LSCS is indicated in the last trimester not in the early period of gestation. Blood transfusion is needed if severe bleeding is there. Abortion is not a treatment choice for this condition if the fetus is healthy. In the early periods of gestation when the placenta previa diagnosis is made, activity restriction and bed rest is needed as management.

#3

During the antenatal visit a primigravida mother complained of backache once she came back to home after work. Which among the following is the correct response from the nurse?

a. It is normal feeling and nothing to do with it
b. More rest is needed now
c. Practice tailor sitting
d. Practice pelvic floor exercises

Ans. (c) Practice tailor sitting

Explanation: Tailor sit exercise helps you to make your thigh, pelvic, and hip muscles more flexible. This exercise helps to reduce the back pain. All other responses are inappropriate for the situation.

#4

Nurse educator was taking class of undergraduate nursing students regarding fetal well being. Which among the following parameters is identified by the nursing students as best reflection of fetal nutrition indicating class was effective?

a. Biparietal diameter
b. Abdominal circumference
c. Head circumference
d. Fetal length

Ans. (b) Abdominal circumference

Explanation: Abdominal circumference is the single measurement which reflects fetal nutrition status.

#5

Labor room nurse noted the findings in one of her primigravida client as follows, cervix dilation 5 cm and fetal station is -1 and 40% effaced. Based upon the findings nurse should understand that her client is in ---------- phase of labor.

a. Latent phase
b. Active phase
c. Transitional phase
d. Expulsive phase

Ans. (b) Active phase

Explanation: In latent phase, cervical dilation is 0–3 cm, in active phase, cervical dilation is 4–7 cm, in transitional phase, cervical dilation is 8–10 cm and expulsive phase begins immediately after the birth and ends with separation and expulsion of the placenta.

#6

Nurse was going through the file of a client with the diagnosis of pregnancy induced hypertension. What all are the signs and symptoms reported in her file?

a. Proteinuria, weight gain, double vision
b. Proteinuria, vaginal bleeding, and double vision
c. Weight gain, double vision, vaginal bleeding
d. Proteinuria, weight gain, vaginal bleeding

Ans. (a) Proteinuria, weight gain, double vision

A

SECTION



Subject wise Synopsis, IBQs and MCQs

Nursing Research

Nursing Education

Nursing Administration

Fundamentals of Nursing

Advanced Nursing Practice and Genetics

Medical Surgical Nursing/Adult Health Nursing

Pharmacology

Community Health Nursing

Psychiatric Nursing

Obstetric and Gynecological Nursing

Pediatric Nursing

Biochemistry and Nutrition

Microbiology

Introduction to Computer and Nursing Informatics

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

"Ill-health of body or of mind, is defeat. Health alone is victory."
—Thomas Carlyle



CHAPTER 1

NURSING RESEARCH

SYNOPSIS

INTRODUCTION

Nursing research provides evidence used to support nursing practices, education, administration and management.

DEFINITION

Nursing Research is defined as "systematic inquiry designed to develop knowledge about issues of importance to the nursing profession, including nursing practice, education, administration, and informatics"—Polit and Beck.

STEPS IN THE QUANTITATIVE RESEARCH PROCESS

Conceptual Phase

- Formulating and delimiting the problem.
- Reviewing the literature.
- Developing a theoretical framework.
- Identifying the research variables.
- Formulating hypotheses.

Design and Planning Phase

- Selecting a research design.
- Specifying the population.
- Operationalizing the variables.
- Conducting the pilot study/making revisions.

Empirical Phase

- Selecting the sample
- Collecting the data
- Organizing data for analysis

Analytic Phase

- Analyzing the data
- Interpreting the results

Dissemination Phase

- Communicating results

STEPS IN THE QUALITATIVE RESEARCH PROCESS

- Define/clarify broad topic
- Review of the literature
- Identify site/setting
- Obtain access
- Obtain and test equipment
- Begin data collection/analysis
- Identify themes/categories
- Triangulation/saturation
- Formulate hypotheses/theories
- Communicate findings

RESEARCH PROCESS

Research Problem

- It is the first step in research process.
- A research problem is a question that researcher wants to answer or a problem that a researcher wants to solve.
- The research problem must be identified in terms of its potential contribution to the society, clients, nurses and the healthcare system.

Key Point

Social relevance is the important concern while choosing research problem.

Sources of Research Problem

- Personal and practical experiences
- Critical appraisal of literature
- Previous research
- Existing theories
- Performance improvement activities
- Social issues
- Brainstorming
- Intuition

Nursing Knowledge Tree
An initiative by CBS Nursing Division

- Folklores (common beliefs)
- Field exposures
- Consultation with experts
- Patient feedback

Formulating Research Problem Statement

- Research problem statement could be declarative or interrogative format
- **Declarative format:** Statement is in declarative form. For example
  - A descriptive study on prevalence of needle stick injury among students nurses in AIIMS, Delhi
  - An experimental study on effectiveness of ginger powder on chemotherapy induced nausea and vomiting among patients receiving chemotherapy at IRCH, AIIMS, Delhi.
- **Interrogative format:** Statement is in question form.
  - What is the impact of nurse-patient relationship on post-discharge adherence to treatment among patients with psychiatric disorders?
  - What is the effect of cold application on pain during IM injection among patients receiving IV penicillin in a tertiary care hospital?

Components of Research Problem Statement

- A well stated research problem has following components
  - Study design
  - Variables
  - Population
  - Research setting
- **Example Statement:** An experimental study on effectiveness of ginger powder administration on chemotherapy induced nausea and vomiting among patients receiving chemotherapy at IRCH, AIIMS, Delhi.

  Components
  - **Study design:** Experimental
  - **Variables:** Independent variable-Ginger powder administration; Dependent variable: Nausea and Vomiting
  - **Population**: Patients receiving chemotherapy
  - **Research setting:** IRCH, AIIMS, Delhi.

Key Point

A research proposal is a document proposing a research project.

REVIEW OF LITERATURE

Review of Literature (ROL) is a systematic way of presentation of relevant references along with brief findings in the specific juncture for the proposed study or research proposal.



Sources of Review of Literature

- **Primary sources:** A primary source provides direct or first-hand evidence about an event, object, person, or work of art. Examples include:
  - Historical and legal documents
  - Original research articles found in Scholarly journals
  - Published thesis
  - Eyewitness accounts
  - Results of experiments
  - Statistical data
  - Pieces of creative writing
  - Audio and video recordings, speeches, and art objects
  - Interviews, surveys, and fieldwork
  - Internet communications via E-mail, blogs, LISTSERV, and newsgroups
- **Secondary sources:** Secondary sources describe, discuss, interpret, comment upon, analyze, evaluate, summarize, and process primary sources. For example:
  - Articles in newspapers or popular magazines.
  - Book or movie reviews.
  - Articles found in scholarly journals that discuss or evaluate someone else's original research.
- **Types of sources:**
  - **Print sources:** Information gathered from printed materials including journals, magazines, textbooks, etc.
  - **Electronic sources:** Information gathered from electronic media such as internet, CD, online journals, blogs, etc. Some of the electronic databases for nursing research are given below.
    - **Ovid MEDLINE:** Literature in the fields of medicine, nursing, dentistry, and preclinical sciences.
    - **Ovid CINAHL (Cumulative index to Nursing allied Health Literature):** Literature related to nursing and allied health disciplines including medical records, physical and occupational therapy.
    - **PubMed:** The US National library of medicine database of biomedical citation and abstracts that is searchable on the website at no cost.
    - **MEDLINE** is the largest component of Pubmed.
    - Cochrane Library.

LITERATURE SEARCH IN PUBMED

Boolean Searching in PUBMED

- PubMed provides for Boolean searching.
- To reach the Boolean Search box in PubMed: click on Advanced Search, and then Click on Boolean Search.
- Boolean search is a type of search allowing users to combine keywords with operators (or modifiers) such as AND, NOT and OR to further produce more relevant results.
- There are three Boolean Operators available in PubMed: **AND, OR, NOT.**
- The operators must be entered in capital letters.
- & (ampersand) can be used in place of AND.
- If you type them in lower case, your search may still retrieve results, but all the lower case Boolean operators will be replaced with AND, which is the default Boolean operator.

MeSH Headings

- Medical Subject Headings (MeSH) is a comprehensive controlled vocabulary for the purpose of indexing journal articles and books in the life sciences.

Nursing Knowledge Tree
An Initiative by CBS

"He who has health has hope; and he who has hope has everything."
—Arabian proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

INTRODUCTION AND DEFINITIONS

1. The word research is derived from the ……., which means "to go about seeking".
a. Recherur b. Recherche
c. Researche d. Resherur

Explanation: The word research is derived from the Middle French "recherche", which means "to go about seeking", the term itself being derived from the Old French term "recerchier" a compound word from "re-" + "cerchier", or "sercher", meaning 'search'. The earliest recorded use of the term was in 1577.



2. In which year, the Government of India set up the Indian Research Fund Association (IRFA)?
a. 1911 b. 1925
c. 1947 d. 1952

3. In which year, the Government of India redesignated IRFA as Indian Council of Medical Research (ICMR)?
a. 1947 b. 1949
c. 1952 d. 1955

Explanation: In 1911, the Government of India set up the Indian Research Fund Association (IRFA) with the specific objective of sponsoring and coordinating medical research in the country. After independence, it was redesignated the Indian Council of Medical Research (ICMR) in 1949, with considerably expanded scope of functions. The Indian Council of Medical Research (ICMR), headquartered at New Delhi, is the apex body in India for the formulation, coordination and promotion of biomedical research.

4. In which year, the National Center for Nursing Research (NCNR) was redesignated as the National Institute of Nursing Research (NINR)?
a. 1985 b. 1990
c. 1993 d. 2004

Explanation:
- June 10, 1993 —The NIH Revitalization Act of 1993, becomes law. Among other provisions, it elevates NCNR to an NIH Institute. As such, NCNR is redesignated the National Institute of Nursing Research (NINR).
- June 14, 1993 — The HHS Secretary signs the Federal Register notice establishing the National Institute of Nursing Research (NINR).

***Source**: www.nih.gov*

5. The "American Journal of Nursing", the oldest nursing journal that is still in operation was published in:
a. 1886 b. 1900
c. 1908 d. 1912

Explanation: The first nursing journal, *The Nightingale* was published on March 6, 1886, becoming the first nursing journal. In 1900, the **American Journal of Nursing** began publication, becoming the first nursing journal to be owned and operated by nurses. It remains the oldest nursing journal still in circulation.

6. The first nursing journal dedicated to nursing research, '*Nursing Research*' was published in:
a. 1925 b. 1952
c. 1965 d. 1970

7. The terminology used to explain the number of subjects recruited to participate in a study decline during a course of the project:
a. Variability b. Heterogenetic
c. Homogeneity d. Attrition

Explanation: Attrition means "wearing away" or progressive loss of data in research. It occurs when cases are lost from a sample over time or over a series of sequential processes. Sample attrition is commonly expected in a longitudinal studies or experimental studies.

8. The subject in a research study behaves in a particular manner because they are aware that they are being observed. This is called:
a. Hawthorne effect b. Experimental effect
c. Reactive effect d. Novelty effect

Explanation: Hawthorne effect refers to the tendency of subjects to perform better when they are aware that they are being observed.
- Experimental effect: Researcher's characteristics influence subject behavior.
- Reactive effect: Reactive effect of pretest sensitivity on the posttest.
- Novelty effect: Subjects and researcher might behave in different ways when exposed to new treatment.

9. A nurse who reads research articles and incorporates research findings into clinical practice is a:
a. Consumer b. Primary investigator
c. Co-investigator d. Collaborator

10. Contributions of Florence Nightingale to nursing research is:
a. Case study approach
b. Conceptual Framework for research
c. Data collection and analysis
d. Qualitative research method

11. The sentence "The purpose of this study was to examine the relationship between knowledge and preoperative anxiety among patients undergoing abdominal surgery" would most likely be found in which chapter of a research dissertation?
a. Introduction
b. Review of Literature
c. Methodology
d. Data Analysis and Interpretation

Ans.
1. b
2. a
3. b
4. c
5. b
6. b
7. d
8. a
9. a
10. c
11. a

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

12. Feasibility of a research study is determined by examining:
a. Investigator's credibility
b. Availability of subjects
c. Importance of research problem
d. Previous research evidences

13. The researcher has written in his research proposal that written permission has been obtained from two local hospitals to access their staff nurses for data collection. This is an example of what aspect of a research:
a. Reliability b. Validity
c. Ethics d. Feasibility

Explanation: Validity and reliability are related to assessment of measurement tools for its appropriateness and consistency respectively. Obtaining permission from a hospital to access their employees for data collection is part of feasibility in conducting the research. Obtaining permission from study participants and institutional ethical committee (including hospital ethics committee) are related to ethical aspect of a research study. So, obtaining permission from hospitals is more closely associated with feasibility than ethics.

14. Which among the following is not an appropriate research area? *(INC PhD 2020)*
a. Abortion mortality as a method of contraceptive
b. Postpartum contraceptive methods
c. Initiation of breastfeeding immediately after delivery
d. Low birth weight babies and their outcomes

15. "Abstract" in research is defined as:
a. Specific and particular
b. General and not well-defined
c. Precise and well-defined
d. Concrete and specific

16. Who is the first nurse researcher?
a. Martha Rogers b. Dorothea Orem
c. Florence Nightingale d. Sr. Callista Roy

17. Condition or characteristic that can take on different values or categories is called a:
a. Constant
b. Variable
c. Cause-and-effect relationship
d. Descriptive relationship

18. All of the following are examples of grand theory; except:
a. Interpersonal Model
b. Community Empowerment Model
c. Health Belief Theory
d. Maslow's Hierarchy Needs Theory

19. The theories are:
a. Based on preexisting facts
b. Testable
c. Formulated prior to research
d. Derived from issues

20. Inductive theories are based on conclusion drawn by:
a. Testing theories
b. Moving from general to specific
c. Moving from specific to general
d. General observations

21. Which of the following research focuses on development or refinement of theories and principles?
a. Action research b. Evaluation research
c. Basic research d. Historical research

Explanation: Basic research or fundamental research is conducted with the aim to develop or refine theories and principles.

22. All of the following can be a limitation of scientific method; except:
a. Arranging funds
b. Controlling extraneous variables
c. Measurement of variable
d. Human complexity

23. All of the following are characteristics of good research; except:
a. Directed toward development or testing of theories
b. Carried out using large funds
c. It is an orderly and systematic process
d. Use of appropriate methodology

Explanation: Conducting research with large fund is not necessarily a characteristic of a good research. Characteristics of good research include:

- It begins with clearly defined purposes
- It is an objective, logical, orderly and systematic process
- It is an orderly and systematic process
- It is based on current professional issues
- Emphasise on developing, refining, and expanding professional knowledge
- Directed toward development or testing theories
- Finding solution of a problem
- Dedicated to develop empirical evidence
- Strive to collect first-hand information
- use of appropriate methodology
- Use of valid and reliable tools
- conducted on representative sample
- Appropriately analysed the data
- Carefully recorded, reported and communicated

24. Theories are:
a. Already existing
b. Formulated and keep on changing
c. Stagnant and never change
d. None of the above

25. Research paradigm is:
a. Conceptual framework
b. Theoretical framework
c. Study framework
d. None of the above

26. Nursing research can be based on:
a. Only nursing theories
b. Theories from other disciplines
c. Both a and b
d. None of the above

27. A study of experiences is called:
a. Phenomenology b. Ethnography
c. Action research d. Grounded theory

28. The group of study participants that does not receive the intervention is known as:
a. Control group b. Experimental group
c. Randomized group d. Subjects

29. Subset of a population is called:
a. Study population b. Target population
c. Sample d. Unit



Ans.

12. b
13. d
14. a
15. b
16. c
17. b
18. b
19. b
20. c
21. c
22. a
23. b
24. b
25. a
26. c
27. a
28. a
29. c

Nursing Knowledge Tree
An initiative by CBS Nursing Education

Health is the greatest of all possessions; a pale cobbler is better than a sick king."
—Isaac Bickerstaff



CHAPTER 2 NURSING EDUCATION

SYNOPSIS

EDUCATION

It brings change in behavior of an individual in a desirable manner. It aims at all-round development of an individual.

Philosophies of Education

The term 'Philosophy' has been derived from two words, i.e., "philos" means 'love' and "sophia" means 'wisdom'. Philosophy means love for wisdom.

Traditional Philosophies (Table 1)

TABLE **1:** **Traditional Philosophies: Some facts**

Character	Naturalism	Idealism	Pragmatism (Experimentalism)	Realism
Exponents	• **Aristotle** • JJ Rousseau	• **Plato** is father of Idealism. • Socrates, Kant, Hegel, Guru Nanak, Tagore, Mahatma Gandhi, Dayananda and others.	• **William James** is the father of Pragmatism • **John Dewey**, S. Kil Patrick • Margaret H and Mead	• J Friedrich Herbert • Herbert Spencer • Franklin Bobbitt
Fundamental principles	• Separate nature from God • Human life is part of nature • Emphasize 'matter and the physical world' • Ignore spirituality and supernaturalism.	• Ideas or thoughts make up fundamental reality • Ultimate reality is spiritual rather than physical, mental or material. • The only real things are mental entities, not physical things.	• It is the product of practical experiences of life. • Based on practical utility. • Emphasize is on action rather than on thought. • Experimental method of science.	• Correspondence and sensation (as we see it). • What is true and real in daily life is admissible. • Opposes to idealism. • Against spiritualism.
Aims of education	Self-realization, Self-expression, Self-preservation, Struggle for existence.	Idealism emphasizes the glory and grandeur of human life.	Creation of new values, activity and experience, personal and social adjustment, reconstruction of experience, all-round personality development.	Man leads a happy and comfortable life through education. To develop memory of the child.

Contd...

Character	Naturalism	Idealism	Pragmatism (Experimentalism)	Realism
Curriculum	No fixed curriculum. Every child has the right to determine his/her curriculum. Learn directly from nature through experience.	Based upon ideas and ideals. Language, literature, social studies, science and mathematics are included.	Curriculum is fixed in advance at the beginning itself. Utilitarian curriculum includes subjects that impart knowledge and various types of skills. Practical subjects like social studies, physics, maths and hygiene are included at later stage.	Subjects of physical world: mathematics, science and social science.
Methods of teaching	Observation and experimental methods (Learning by doing)	Self-activity, play-way method, project method. **Kindergarten** method. Discussion, lecture, questioning and imitation.	Project method Practical/experiments Handling of objects, tools and making things	Demonstrate, Recite
Role of teacher	Observer, supplier of materials and opportunities (role is behind the scene)	Teacher has to be specialist in knowledge. Teacher's personality is a source of inspiration for students.	Teacher will not impose anything on child. Teacher will facilitate students to be experimenter and discoverer.	Displays, imparts knowledge.

Modern Contemporary Philosophies

- **Existentialism:**
  - This philosophy emphasizes the existence of the humans as a free and responsible agent determining their own development through acts of the will.
  - It is the **youngest of all philosophy**, primarily built upon the work of contemporary scholars of the 20th century.
  - Chief exponents are **Søren Kierkegaard**, **Karl Jaspers** and **Jean–Paul Sartre**
- **Progressivism:**
  - It is the advocacy of improvement of society by reform.
  - Progressivism revolves around the students' needs, including teaching students to be good citizens as well as good learners.
  - Exponents are **John Dewey, William James, G Thomas Lawrence**.
- **Behaviorism:**
  - It believes that the learning is a result of environmental conditioning.
  - Exponents are **Ivan Pavlov (classical conditioning), Skinner (Operant conditioning), John Watson, and Edward Lee Thorndike (connectionism).**
- **Humanism:**
  - It emphasizes the value of human beings and generally prefers critical thinking and evidence (rationalism and empiricism) over superstition.
  - The humanist emphasizes on literature.
  - Key proponents of humanism include **Carl Rogers** and **Abraham Maslow**.
- **Experimentalism:**
  - Experimentalism believes that things are constantly changing.
  - Chief proponent is John Dewey.
- **Eclecticism:**
  - It is the process of pulling out and putting together of the good ideas and concepts of various philosophies of education.
- **Reconstructionism:**
  - It emphasizes the addressing of social questions and a quest to create a better society and worldwide democracy.
  - **Theodore Brameld** was the founder of reconstructionism.
- **Essentialism:**
  - Essentialism refers to the "traditional" or "Back to the Basics" approach to education.



Key Points

- **Plato** is the Father of Idealism. Other proponents of Idealism include Socrates, Kant, Hegel, Guru Nanak, Tagore, Mahatma Gandhi, Dayananda and others.
- **Aristotle and JJ Rousseau** are the proponents of Naturalism.
- **Naturalism** emphasizes 'matter and the physical world'. It ignores spirituality and supernaturalism.
- **William James** is the Father of Pragmatism. Other proponents of pragmatism include **John Dewey** and S. Kil Patrick.
- Pragmatism emphasizes action rather than thought.
- J Friedrich Herbert, Herbert Spencer and Franklin Bobbitt are proponents of Realism.
- Idealism believes that ultimate goal of human activities is the realization of human mind in his or herself.

Nursing Knowledge Tree
An Initiative by CBS Nu

"He who has health has hope; and he who has hope has everything."
—Arabian proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

NURSING EDUCATION IN INDIA

1. What is the duration of the course Nurse Practitioner in Critical Care Nursing according to Indian Nursing Council?
(AIIMS Mangalagiri, Faculty Entrance 2022)
a. 1 year b. 2 years
c. 3 years d. 4 years

2. National Consortium for PhD in nursing has been constituted by Indian Nursing Council in collaboration with:
(AIIMS Mangalagiri, Faculty Entrance 2022)
a. Maharashtra University of Health Sciences
b. Mahatma Gandhi University of Health Sciences
c. Rajiv Gandhi University of Health Sciences
d. Rajasthan University of Health Sciences

3. In India, the first four-year basic bachelor's degree nursing program was established in:
(AIIMS Mangalagiri, Faculty Entrance 2022)
a. 1920 b. 1940
c. 1946 d. 1955

4. In India, first MSc Nursing program was started in RAK College in the year:
a. 1959 b. 1948
c. 1946 d. 1970

5. MPhil in Nursing program was started at RAK College of Nursing in the year:
a. 1972 b. 1980
c. 1985 d. 1992

6. PhD program in Nursing was first started in India in:
a. 1980 b. 1985
c. 1992 d. 1996

7. National Consortium for PhD in Nursing in India was initiated by:
a. AIIMS, New Delhi
b. RAK College of Nursing, New Delhi
c. Indian Nursing Council
d. IGNOU

8. The first batch of PhD students under National Consortium for Ph.D in Nursing was admitted in the year:
a. 1992-1993 b. 2002-2003
c. 2005-2006 d. 2008-2009

REGULATORY AND PROFESSIONAL BODIES

9. The function of Indian Nursing Council is to:
a. Arrange for university inspections of colleges in respective states
b. Financial assistance to conferences and seminars conducted by nursing colleges
c. Make policies for Nursing Education and Practice
d. Recruit nursing personnel in hospitals

10. Trained Nurses Association of India (TNAI) was formed in the year:
a. 1928 b. 1947
c. 1908 d. 1890

11. The International Council of Nurses (ICN) was established in the year: *(Tutor Exam 2015, AIIMS, Rishikesh)*
a. 1869 b. 1899
c. 1928 d. 1905

12. The International Council of Nurses (ICN) is headquartered in:
a. Geneva, Switzerland b. Washington, US
c. New York, US d. London, UK

13. The first state registration council at Madras Nursing Council was constituted in
a. 1908 b. 1926
c. 1947 d. 1949

Explanation: The first state registration council at Madras Nursing Council was constituted in 1926 and Bombay Nursing Council was constituted in 1935.

14. The first school of nursing for midwives with four students was started at
a. Government General Hospital, Madras
b. Christian Medical College, Vellore
c. RAK School of Nursing, Delhi
d. St. Johns Medical College, Bangalore

Explanation: In 1871, the government General Hospital at Madras was started with the first school of nursing for midwives with four students.

15. The first school of Health visitors was started by:
a. Lady Reading Health School, Delhi
b. Christian Medical College, Vellore
c. Government General Hospital, Madras
d. Bombay General Hospital, Bombay

16. The Indian Nursing Council was established in the year:
a. 1945 b. 1947
c. 1949 d. 1952

Explanation: The Indian Nursing Council (INC) is constituted in the year 1949 under the Indian Nursing Council Act 1947. INC is a statutory Autonomous body under Union Ministry of Health and Family Welfare.

17. A web-based application designed for Indian Nursing Council to enable creation of live register of the nurses across the country is known as:
a. NRTS b. AINRS
c. GFATM d. WBNRS



Ans.

1. b
2. c
3. c
4. a
5. b
6. c
7. c
8. c
9. c
10. c
11. b
12. a
13. b
14. a
15. a
16. c
17. a

Explanation: NRTS – Nurses Registration and Tracking System is a web-based application designed for Indian Nursing Council, New Delhi to enable creation of live register of the nurses across the country. Enrollment Registration is the process by which an individual nurse can register and get NUID number along with digital signature.

PHILOSOPHIES OF EDUCATION

18. Which of the following branch of philosophies of education deals with the origin and sources of knowledge?
(AIIMS Mangalagiri, Faculty Entrance 2022)
a. Metaphysics b. Epistemology
c. Ethics d. Entomology

19. "Education is an all-round indrawing out of the best in child and man-body, mind and spirit." This quote is stated by _____. *(AIIMS Mangalagiri, Faculty Entrance 2022)*
a. Swami Vivekananda b. Gautama Buddha
c. Mahatma Gandhi d. Shankaracharya

20. Who among the following is an Exponent of Pragmatism?
(AIIMS Mangalagiri, Faculty Entrance 2022)
a. Socrates b. Aristotle
c. Herbert Spencer d. John Deway

21. Which among the following philosophies of education focuses on the fusion and synthesis of different philosophies?
(AIIMS Mangalagiri, Faculty Entrance 2022)
a. Realism b. Pragmatism
c. Eclecticism d. Idealism

22. The philosophy of education in which treatment of things is based solely on their practical utility is called_____.
a. Realism b. Idealism
c. Naturalism d. Pragmatism

23. Which of these is not a conventional philosophy?
a. Idealism b. Naturalism
c. Pragmatism d. Existentialism

24. Which philosophy believes that ultimate goal of human activities is the realization of human mind in his or herself?
a. Idealism b. Pragmatism
c. Realism d. Existentialism

25. Which philosophical thought states that 'ultimate reality is spiritual rather than physical, mental rather than material'?
a. Idealism b. Realism
c. Pragmatism d. Spiritualism

26. John Dewey was a proponent of:
a. Spiritualism b. Idealism
c. Realism d. Pragmatism

27. Who among the following proposed that education be designed on the basis of a theory of experience?
a. Socrates b. John Dewey
c. Aristotle d. Jean Piaget

28. All of the following are traditional philosophies of education; except:
a. Idealism b. Pragmatism
c. Naturalism d. Essentialism

29. Who stated "education is not a preparation for life; education is life itself"?
a. Jean Piaget b. Socrates
c. John Dewey d. Mahatma Gandhi

30. "Democracy and Education" (1916) was authored by:
a. Sigmund Freud b. John Dewey
c. Jean Piaget d. Jawaharlal Nehru

31. The interaction analysis category system in education for increasing the teacher effectiveness was developed by:
a. Amidon
b. Simon
c. Flander
d. Richard Over

32. Who stated that "Man is born free but everywhere he is in chains"?
a. Jean Jacques Rousseau
b. Sigmund Freud
c. John Dewey
d. Jean Piaget

33. "By 'Education' I mean an all-round drawing out of the best in child and man body, mind and spirit." This quotation is given by:
a. Rabindranath Tagore
b. Mahatma Gandhi
c. Sarvepalli Radhakrishnan
d. Jawaharlal Nehru

34. A set of interrelated concepts that give a systematic view of a phenomenon which is explanatory and predictive in nature is known as: *(AIIMS Mangalagiri, Faculty Entrance 2022)*
a. Construct b. Theory
c. Preposition d. Process

EDUCATIONAL OBJECTIVES

35. The first level of the cognitive domain in Bloom's Taxonomy is: *(AIIMS Mangalagiri, Faculty Entrance 2022)*
a. Comprehension b. Knowledge
c. Analysis d. Synthesis

36. Basic cognitive domain verb among the following is: *(INC PhD 2020)*
a. Receiving b. Responding
c. Applying d. Organizing

37. Which among the following shows higher level of domain verb? *(INC PhD 2020)*
a. Remembering b. Receiving
c. Imitation d. Creating

38. Nursing student working is a palliative care setting spent her time with the patients who all are in the end stage of the life. She always spent time with dying patient's last 5-10 min. What kind of educational domain verb she achieved? *(INC PhD 2020)*
a. Characterization b. Receiving
c. Responding b. Valuing

39. In which type of objective, breaking down of professional functions into components (activities) is done that together indicate the nature of the functions?
a. Central b. Specific
c. Intermediate d. Tertiary

40. The cognitive domain in educational objectives refers to: *(AIIMS Raipur NO 2019):*
a. Knowledge b. Attitude
c. Skills d. Behavior



Ans.

18. b
19. c
20. d
21. c
22. d
23. d
24. a
25. a
26. d
27. b
28. d
29. c
30. b
31. c
32. a
33. b
34. b
35. b
36. c
37. d
38. a
39. d
40. a

Nursing Knowledge Tree
An initiative by CBS Nursing Division

"Better ten times ill than one time dead."
—Yiddish



CHAPTER **3**

NURSING ADMINISTRATION

SYNOPSIS

NURSING MANAGEMENT

Nursing management is defined as a process of planning, organizing, activating, and controlling the managerial function of nursing in order to determine and accomplish the objectives of nursing care.

Levels of Nursing Management

Level of nursing management refers to the line of division that exists between various managerial positions in an organization. The different levels of management represent the chain of command as well as the amount of authority related to particular levels (Table 1). It is classified as:

- Top
- Middle
- Operative

TABLE **1:** **Levels of management**

Level of Management	Description
Top	• It is the administrative level. • This level is the source of authority and is responsible for establishing goals, policies and objectives for nursing services. • The top-level managers issue instructions to the lower level. • **E.g., Chief Nursing Officer, Nursing Superintendent** • In hospital settings, top level managers are assisted by DNS and ANS (middle level managers)
Middle	• It is the executive level. • This level is accountable for top level managers. • Middle level managers are usually the head of hospital wards and other patient care units. • They prepare duty roster for the operative level nurses and divide work for them and ensure adequate supply for continuous patient care, e.g., ANS, ward in charge
Operative	• It is the lower level of management. • They are designated as nursing officers and are responsible for direct patient care. • They are responsible for carrying out instructions given by other health care team members regarding patient care • They communicate to top level managers through middle level managers (through proper channel) • E.g., Senior nursing officers, nursing officers

Contd...

Principles of Management

- Principles of management help the manager to run the institution.
- **Henri Fayol** has given **14 principles of management (Table 2).**
- **Henri Fayol** is also known as **Father of Modern Management Theory.**

TABLE **2:** **Principles of management**

Principles	Description
Division of work	• This principle states that division of work among workers will enhance the quality of work. • It improves the productivity, efficiency, accuracy, and speed of the workers. • It helps to **bring out specialization among employees.** • Division of work principle is also known as **principles of specialization.**
Authority and responsibility	• Authority means the ability to give orders to subordinate. • Responsibility means the obligations to carry out the order given under the guidance or supervision of the authority.
Discipline	• It is the obligation to follow rules and regulation of an organization.
Unity of command	• It means that one employee should have only one supervisor and employee should receive command from only that supervisor. • If more than one supervisor is there to give commands, it makes confusion and conflict.

Contd...

Nursing Knowledge Tree
Compiled by CBS Nursing Division

Unity of direction	• It means that activities or work in a unit should direct to achieve the same goal or objective.
Subordination of individual interest	• It means that management should put personal interest aside and organizational objectives first. • Be subordinate to the purposes of an organization.
Remuneration	• An employee should get monetary and non-monetary benefits from the organization.
Centralization	• It means that authority should rest at one place. • In centralization, decision making authority will be at the top level. • Dispersal of authority with lower level is known as decentralization.
Scalar chain of command	• It means that the level of authorities should be clear from top to bottom. • It helps the employee to contact the immediate supervisor if needed. • This principle recognizes the necessity of formal authority in an organization.
Order	• This principle states that right person should be placed at the right job and a right thing should be placed at the right place. • Every organization has two different orders: ▪ Material Order for Physical Resources ▪ Social Order for Human Resources.
Equity	• All employees should get fair and impartial treatment. • Managers should maintain balance between equity and discipline.
Stability of tenure	• The work of the employees should not be of too short duration. • Employee should not be rotated from work to work or position to position frequently. • Employee should be given enough time to get used to a work assigned to him/her otherwise it won't be fruitful.
Initiative	• Employees should be given opportunity to come up with new ideas and plans. It helps to increase their interest in the organization and it also helpful for the organization to grow.
Esprit de corps (Unity of strength)	• Employee should feel a sense of belonging and team spirit at the workplace. • This principle promotes mutual trust and understanding. • The two main enemies to this principle are divide and rule and abuse of written communication by the employer

Contd...

Functions of Management

Luther Gulick, the father of management and the first director of National Institute of Public Administration of USA had given an acronym **POSDCORB** for the functions of management (Table 3).

P = Planning
O = Organizing
S = Staffing
D = Directing
CO = Coordinating
R = Reporting
B = Budgeting

TABLE **3:** **Functions of management**

Functions of Management	Descriptions
Planning	• It is one of the basic functions of the management. • The managers decide **What to do and How to do it**. • It involves selection of objectives, policies, strategies, and programs in relation to nursing.
Organizing	• According to Louis Allen, "Organization is the process of identifying and grouping work to be performed, defining and delegating responsibility and authority and establishing relationships for the purpose of enabling people to work most effectively together in accomplishing objectives." • According to Wheeler's view, "Organization is a **process of fixing duties and responsibilities** of persons in an enterprise so that business goals are achieved."
Staffing	• **Obtaining right human resources** with certain skill matching for that position at right time to achieve organizational goals. • This includes staff recruitment procedure, selection of personnel assigning them with correct job, organizational orientation and in service education.
Directing	• It means **directing and leading employees to do the work** assigned to them. • It also relates with the creation of an environment where maximum output from the employee can be obtained. • **Motivation** and **leadership** are the two components which affect directing.
Controlling	• It means comparing the employee's performance with criteria of performance and find out where the deviation occurs and take appropriate action to correct the deviation. • **Reporting and budgeting** are also the part of controlling.



- Revenue is mainly of two types, tax (income tax, corporate tax, customs, etc.) and non-tax (investment made by government and fees charged by government food service)

Capital Budget

- Capital Budget comprises the government's capital receipts and payments.
- Capital receipts include market loan, borrowing by government from Reserve Bank, foreign government, and bodies, etc.
- Capital payments include payment done for acquisition of assets like land, building etc.

Operation budget: Operation budget includes the operating cost such as cost of supplies, maintenance of equipment, etc.

Manpower budget: It is the salaries need to be paid to the employees.

Historical budget: Previous year's expenses are used as a basis for this year's budget.

Forecast budget: It is also called statistical budget. It is an anticipatory budget developed on the basis of historical budget.



Golden Points to Remember

1. Mission statement is a broad statement of an organization that specifies how it will achieve its goals.
2. **Henri Fayol:** 14 principles of management.
3. Performance appraisal is the way of acknowledging the performance of an employee.
4. Source of income in budgeting terms is called **Revenue.**
5. Headquarters of International Nursing Council is in **Geneva.**
6. Patient care method in which patient care areas provide various levels of care Progressive patient care. E.g. Step down units.
7. Purpose of recruitment is to provide a pool of potentially qualified candidates for job.
8. Individuals who do NOT make decision unit they are aware of all the facts pertaining to a certain situation are called **open minded.**
9. SWOT stands for strengths, weaknesses, opportunities and threats.
10. The most crucial phase of group dynamics is storming phase.
11. Ward in-charge Nurse (head nurse) is responsible for inventory control at lower managerial level.
12. **Replacement:** There must be a regular system of replacing certain items when they are broken or of no use before new ones are supplied.
13. **Procurement:** Process of selecting vendors, establishing payment terms, strategic vetting, selection, negotiation and purchasing of goods.
14. **Storage:** Materials stored in an appropriate place in a correct way**.**
15. **Democratic leadership**: Whole team is involved in formulating decision.
16. **Autocratic leadership:** Leader alone establishing policies and making plans. The criteria used by him is "Do what I say or else..."
17. **Laissez-faire leadership:** This is also known as delegative leadership in which leaders are hands-off and allow group members to make the decisions. The leader has absolutely no control.
18. Leaders have followers whereas managers do not have followers.
19. World Health Organization (WHO) was constituted in the year 1947.
20. WHO is headquartered in Geneva, Switzerland.
21. The International Council of Nurses (ICN) was established in the year 1899.
22. The International Council of Nurses (ICN) is headquartered in Geneva, Switzerland.
23. Quality indicators is the best to determine whether high quality care is being delivered.
24. An organization's ability to meet analytical specifications for precision and accuracy is referred to as **quality control.**
25. Procedure manual is a written document which guides rationalized nursing measures.
26. A planned schedule of duty hours of nurses is referred to as Duty Roaster.
27. **The INC standard for Teacher:** UG Students ratio for nursing colleges is 1:10.
28. National Health Policy is announced by Government of India in the year 1982.



"When you are sick of your sickness, you are no longer sick."
—Chinese Proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

INTRODUCTION TO NURSING ADMINISTRATION AND MANAGEMENT

1. Which of the following is not the principle of organization? *(RAK MSC 2018)*

a. Hierarchy
b. Delegation
c. Span of control
d. Pervasiveness

Explanation: Pervasiveness is not the principle of the organization. There are six principles of organization given by Henri Fayol (1947)

- Hierarchy
- Span of control
- Integration Vs Disintegration
- Centralization Vs Decentralization
- Unity of Command
- Delegation

2. The level of conversation in which no sharing of oneself occurs is:

a. Level 1: Open conversation
b. Level 5: Cliché conversation
c. Level 4: Reporting of facts
d. Level 2: Spontaneous conversation

Explanation:

Level 5 (Cliché' conversation) It is very superficial communication, where there is no communication about their self and everyone remains safe in conversation.

Level 1 (Open conversation) This happens in emotionally open and honest communication.

Level 2 (Spontaneous conversation) Spontaneous thought like what is felt about situation is shared.

Level 3 (My ideas or judgment) Own ideas and opinion are shared.

Level 4 (Reporting of facts) Share facts and expose almost nothing about personal.

3. "Esprit de corps" refers to: *(AIIMS Mangalagiri, Faculty Entrance 2022 and AIIMS Raipur NO 2019)*

a. Sense of achievement
b. Sense of humor
c. Sense of belonging
d. Sense of morality

Explanation:

"Esprit de corps" refers to Sense of belonging. It means promotion of team spirit brings the organization a feel of unity. It is one of the Fayol's 14 principles of management.

4. The following are the steps of creative process EXCEPT: *(AIIMS Mangalagiri, Faculty Entrance 2022)*

a. Incubation
b. Illumination
c. Intuition
d. Verification

5. The number of people directly reporting to any one manager or officer is known as: *(RAK MSc 2018)*

a. Line organization
b. Scalar chain
c. Span of control
d. Staffing

Explanation: Span of control is one of the principles in organization, where span of control depicts the number of employees that can be handled by a single manager; the number of people who report to one manager in the hierarchy.

6. An answerability of a subordinate to his/her superior for performance of the assigned tasks is known as: *(RAK MSc 2018)*

a. Responsibility
b. Accountability
c. Authority
d. Delegation

Explanation: An answerability of a subordinate to his/her superior for performance of the assigned tasks is known as Accountability. Accountability, means that the employee or subordinate is held responsible for successfully completing the task and will have to at least explain why they failed to do so.

7. The study of how people interact within groups and its principles are used to make businesses operate more effectively is known as:

a. Classic Theory
b. Humanistic Behavior
c. Organizational Behavior
d. Holistic Behavior Concept

8. With reference to elements of administration, POSDCORB stands for:

a. Planning, Observing, Staffing, Directing, Controlling, Reporting, and Budgeting
b. Preparation, Organizing, Staffing, Directing, Controlling, Reporting and Budgeting
c. Planning, Organizing, Staffing, Directing, Coordinating, Reporting, and Budgeting
d. Preparation, Observation, Staffing, Directing, coordinating, Reporting and Budgeting

9. The authority flows from top to bottom is referred to as:

a. Span of control
b. Scalar chain
c. Line organization
d. Lateral organization

10. Functions of management includes:

a. Planning
b. Organizing
c. Controlling
d. All of these



Ans.

1. d
2. b
3. c
4. c
5. c
6. b
7. c
8. c
9. c
10. d

Nursing Knowledge Tree
An Initiative by CBS Nursing Academy

11. **Principles of organization includes:**
    a. Hierarchy b. Delegation
    c. Span of control d. All of these
12. **A nurse who integrates body—mind-spirit principles in clinical practice is known as:**
    a. Nurse specialist b. Nurse Administrator
    c. Holistic nurse d. Nurse Practitioner
13. **Behavioral objectives model is also referred as:**
    a. Process model b. Product model
    c. Interpersonal model d. Biological model
14. **Those institutions that are systematically organized and purposely set up is known as:**
    a. Formal agency b. Governmental agency
    c. Service agency d. Technical agency

THEORIES OF MANAGEMENT

15. **Who is considered as the Father of Scientific management?** *(AIIMS Mangalagiri, Faculty Entrance 2022)*
    a. Henry Foyal b. Luther Gullik
    c. Frederick Taylor d. Harrington Emerson
16. **Which among the following is the leadership theory?** *(AIIMS Mangalagiri, Faculty Entrance 2022)*
    a. Theory X and theory Y
    b. Equity theory
    c. Chester Barnard theory
    d. Time and motion studies
17. **Who has given 14 principles of management?** *(RAK MSC 2018)*
    a. Daniel Fraud b. Mary Follett
    c. Henri Fayol d. Florence Nightingale

Explanation: Henri Fayol described the 14 principles of management.

1. Division of work	8. Equity
2. Centralization	9. Unity of direction
3. Authority and Responsibility	10. Stability of Tenure
4. Scalar Chain	11. Interest
5. Discipline	12. Initiative
6. Order	13. Remuneration
7. Unity of Command	14. Esprit De Corp

18. **Two-factor theory (Motivation-Hygiene theory) of management was proposed by:** *(AIIMS-BBS SNO 2019)*
    a. Frederick Herzberg b. W. Edwards Deming
    c. Frederick Taylor d. Elton Mayo

Explanation:

Name	Contribution
Max Weber	Theory of Bureaucracy
Henri Fayol	14 principles of management
Frederic Winslow Taylor	Father of scientific management
Elton Mayo	Human relation motivation theory-including Hawthorne effect.

19. **Which of the following theories stresses the importance of change within organizations?**
    a. Neoclassical Theory b. Classical Theory
    c. System Theory d. Chaos Theory

Explanation: Chaos theory incorporates principles of quantum mechanics. It stresses the importance of change within organizations.

20. **Which of the following management theory focuses upon cost reduction, use of resources, right person for right job and giving salary at a high rate for the efficient employees?**
    a. McGregor's Theory X
    b. McGregor's Theory Y
    c. Herzberg's two factor theory
    d. Frederick Taylor's principles of management
21. **Who proposed the methods to increase the productivity of workers to increase the organizational productivity?**
    a. Frank b. Lillian Gilberth
    c. Frederick Taylor d. Hendry Fayol
22. **Who is the Father of Time and Motion studies of management?**
    a. Frank and Lillian Gilberth
    b. Frederick Taylor
    c. Elton Mayo
    d. Max Weber
23. **According to Max Weber, the characteristics of bureaucracy includes all, EXCEPT**
    a. Division of labor b. Informal selection
    c. Hierarchy of authority d. Framework of rules
24. **Which of the following study used a camera to look at how body motions are using while completing a task?**
    a. Time and motion studies
    b. Elton Mayo Hawthorne effect
    c. McGregor's theory X and Y
    d. Contingency theory
25. **Which of the following focuses on conservation of human resources in the search for the most efficient method of doing a task?**
    a. Theory X and Y b. Contingency theory
    c. System theory d. Time and motion studies
26. **Which of the following management theory is criticised as it promotes inhuman approaches towards employees?**
    a. McGregor's theory X and Y
    b. Max Weber theory of bureaucracy
    c. Contingency theory
    d. Frederick Taylor's scientific management theory
27. **Elton Mayo Hawthorne effect experiment was first conducted at**
    a. Ford Motor company
    b. Western electric company
    c. General electricals
    d. Thomson electricals
28. **Which of the following is incorrect regarding system approach in management?**
    a. The organization is viewed as a whole or as a system
    b. The organization is viewed as a unified and purposeful system
    c. System approach is proposed by quantitative school of management
    d. The whole is greater than the sum of its parts



Ans.

11. d
12. c
13. b
14. a
15. c
16. a
17. c
18. a
19. d
20. d
21. c
22. a
23. b
24. a
25. d
26. b
27. b
28. c

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

"One day in perfect health is much."
—Arabic



CHAPTER 4

FUNDAMENTALS OF NURSING

SYNOPSIS

HISTORY OF NURSING

Florence Nightingale

- Florence Nightingale, also known as "the Lady with the Lamp," was a philosopher and founder of Modern Nursing.
- She was born in Florence, Italy on May 12, 1820 and died on August 13, 1910.
- Every year, International Nurses Day is celebrated on 12th May.

Nursing in India

- In 1871, the first school of nursing was started in Government General Hospital, Madras (now Chennai) with 6 months Diploma in Midwives' Program.
- In 1926, Madras state (now Tamil Nadu) formed first registration council to provide basic standards in education and training.
- In 1908, Trained Nurses Association of India (TNAI) was formed.
- In 1946, the first four years' bachelor's degree program was established at RAK College of Nursing in Delhi and Christian Medical College, Vellore.
- The Indian Nursing Council Act was passed by ordinance on December 31, 1947.
- Nursing Council Act came into existence in 1948 to constitute a council of nurses.
- In 1959, the first master's degree course, a two-year postgraduate program, was started at the RAK College of Nursing, Delhi.
- 1986–M. phil in nursing started in RAK College
- 1992–PhD in nursing started in RAK College of Nursing

NURSING EDUCATION

Categories of Nursing Education

Course	Duration
General Nursing and Midwifery	3 years and 6 months
Auxiliary Nurse Midwife	18 months and 6 months internship
BSc Nursing	4 years
Post-basic Nursing	2 years
MSc Nursing	2 years
MPhil Nursing	1-year course for regular candidate and 2-year course for part-time candidate
PhD in Nursing	3 years – full time 5 years – part time

Contd...

Key Points

- **Florence Nightingale** defined Nursing as **"the art of utilizing the environment of patients to assist them in their recovery."**
- **Environment** is the focus of nursing care in Nightingale's theory.
- A profession requires an extended education/training of its members as well as a basic foundation.

Characteristics of a profession:

- Profession has a theoretical body of knowledge leading to defined skills and abilities
- A profession provides a specific service

LEGAL AND ETHICAL ASPECTS IN NURSING

Ethics

Refers to well-founded standards of right or wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues.

Autonomy: Right to make one's own decision. It is about respecting other people's wishes and supporting them in their decisions.

Beneficence: Doing good to others.

Nonmaleficence: No harm to others.

Justice: It is also called fairness, i.e., to treat equally and fairly.

Fidelity: Faithful to agreement and promises.

Veracity: Telling the truth.

Accountability: Answerable to oneself and others for own action.

Responsibility: Specific accountability or liability associated with the performance of duties of a particular role.

Nursing Knowledge Tree
An Initiative by CBS

Code of Ethics for Nurses

- Code of ethics serves as a means of self-regulation and sets the standard of individual behavior for the profession. Professional code of ethics is a system of rules and principles and nurses adhere to the professional practice standards by following these.
- The Nurses code was first established by the **International Council of Nurses Codes** in 1953. The ICN code of ethics for nurses, most recently, was revised in the year 2012.
- **Four principal elements of ICN code of ethics:**
  1. Nurses and people
  2. Nurses and practice
  3. Nurses and the profession
  4. Nurses and co-workers
- The fundamental responsibility of the nurse is in four areas, namely, to promote health, to prevent illness, to restore health, and to alleviate suffering.

Legal Aspects in Nursing

Torts

It is a wrongful act committed against a person or property. Torts may be classified as Intentional and Unintentional torts.

Intentional Torts

A purposeful act that violates another person's rights:

- **Assault:** It is an act of unlawful threat or attempt to do bodily injury to another, e.g., threaten to give injection without consent.
- **Battery:** It is any unlawful or intentional touching of a person without consent that may or may not cause harm.
- **Invasion of privacy:** It is an unwanted intrusion into person's private affairs.
- **Defamation of character:** It is communication of false statements that result in damage to the reputation of a person. There are two types of defamation. They are:
  1. **Libel:** This type of defamation can take place in the form of print, writing or picture.
  2. **Slander (Oral):** Defamation occurs in the form of spoken words or false words.
- **Fraud:** It is a deliberate deception intended to secure unfair or unlawful gain.
- **Intrusion:** It is an act of invasion into another person's private affairs.
- **Public disclosure:** It is an act of revealing some information about a person's private life.
- **Malice:** It is an act of publishing despite a false information about someone knowing that it is false.
- **Appropriation:** It refers to the use of a person's name or image for unauthorized commercial use without his/her knowledge.

Unintentional Torts

- **Negligence:** It is an act or conduct that falls below the standard of care. The standard is established by law for the protection of others against an unreasonably great risk of harm.
- **Malpractice:** It is professional negligence or carelessness committed by a professional person. If the professional does not meet the standard while performing care, they may be held liable for negligence.



Crime

An act committed for violation of law where the consequence of conviction by a court is punishment, especially where the punishment is a serious one such as imprisonment. It can be classified as:

- **Felony:** It is a crime of serious nature which involves a potential punishment of one year or longer in prison.
- **Misdemeanor**: It is a lesser criminal act which is punished less severely than felony (<1 year imprisonment).

Good Samaritan Law

It generally provides basic legal protection to the healthcare provider who renders first aid in an emergency to an injured person, e.g., Good Samaritan law protects rescuer who voluntarily performs CPR on a victim.

PROFESSIONAL VALUES

Professional values are the guiding beliefs and principles that influence work behavior.

- **Altruism:** Selfless concern of a nurse for the wellbeing of patients and others, e.g., advocating for vulnerable patients and mentoring other healthcare professionals.
- **Autonomy:** Right to self-determination, e.g., Nurse should respect patient's rights to make decisions on their treatment, e.g., plan of care in consultation with patients.
- **Integrity:** The quality of being honest and act in accordance with code of ethics, e.g., providing honest information to patients and family, taking responsibility for own actions and accurate documentation.
- **Human dignity:** Respect for the uniqueness of individuals/people, e.g., culturally competent care to patient, respecting patient's privacy and maintaining confidentiality of patient's information.
- **Social justice:** "Acting in accordance with fair treatment regardless of economic status, ethnicity, age, citizenship, disability, or sexual orientation" (American Association of College of Nursing, 2007), e.g., facilitate universal access to healthcare and nondiscrimination in delivery of nursing care.

ADMISSION AND DISCHARGE

Admission

Admission is entry of a patient in a health care facility.

Types of Admissions

- **Routine admissions:** These admissions are planned prior.
- **Emergency admissions:** Admissions with no prior planning because of sudden illness, injury, worsening of existing condition, etc.
- **Medicolegal issues-related admission:** Chief Medical Officer and police need to be informed about such admissions and these records should be kept confidential with proper label.

Discharge

Discharge is release of a patient from a health care facility.

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

Key Points

- Vital Signs are also known as **Cardinal Signs**
- The **Vital Signs** are:
  1. Temperature
  2. Pulse
  3. Respiration
  4. Blood pressure, and
  5. Pain
- The rectal route is the most accurate for assessing core temperature.
- Body temperature of a healthy person is higher in the evening than in the morning.
- The range of marking in glass/clinical thermometer is **95°–110°F** and **35°–43.3°C**.
- Best site for assessment of temperature in children is **Axilla**.
- Tympanic temperature = Oral temperature.

Key Points

- Apical pulse is measured with the help of stethoscope in the fifth intercostal space at left midclavicular line.
- Suitable site to check pulse in newborn is **Apical Pulse.**
- When a pulse rate is irregular, it is best to count the Apical pulse for a full minute.
- The sequence of vital signs assessment in newborn is **R**espiratory Rate, **P**ulse and **T**emperature.
- Always count pulse for one full minute.
- **Normal respiratory rate adult:** 12–18 breaths/min.
- Paradoxical respiration is seen in Flail Chest due to **Blunt Chest Trauma.**
- Do physical examination in a sequence of inspection, palpation, percussion and auscultation except for abdominal examination.
- In abdominal examination, palpation and percussion can alter bowel sounds, so inspect, auscultate, percuss, then palpate an abdomen.

HEALTH ASSESSMENT

It includes health history and physical assessment.

Types of Health Assessments

- **Initial assessment:** Helps to determine the nature of the problem.
- **Comprehensive:** It includes health history and physical examination. All aspects of patient's health will be examined and it will provide data for base line assessment.
- **On-going:** It is conducted on regular interval in order to know the effect of treatment or intervention provided to the patient.
- **Focused:** It is conducted to collect more information regarding any specific problem that the patient is suffering from.
- **Emergency assessment:** Rapid focused assessment conducted to determine potentially fatal situation.
- **Time-lapsed assessment:** To compare a patient's current status to baseline data obtained earlier.

Techniques of Physical Examination

- **Inspection:** It means observing the patient properly and collecting information regarding his health status.
- **Palpation:** The act of feeling with the hand; application of the fingers with light pressure on the surface of the body for the purpose of determining the conditions of the parts beneath. Bimanual palpation refers to palpation with both hands.
- **Percussion:** Tapping any part of the body and assessing the sound produced to collect information.
- **Auscultation:** Listening to different body sounds using instruments such as stethoscope.
- The sequence of physical examination: Inspection → Palpation → Percussion → auscultation.
- In abdominal examination, the sequence is Inspection → Auscultation → Percussion → Palpation

Nursing Knowledge Tree
Curated by CBS Nursing Division

Also Know

Assessing Vital Signs

- Before the thermometer is used for another patient, it should be disinfected with 1:40 strength of Dettol or 1:20 strength of Savlon (most preferred and best solution) for 5 minutes and with Lysol and carbolic with 1:40 for 3 minutes. (For mercury glass thermometer)
- Rectal method is the most reliable method for taking temperature.
- If the patient has just had a very hot or cold drink, wait 10–20 minutes before taking the temperature.
- The most accurate assessment of pulse rate is apical pulse, and for measurement, stethoscope is required.
- A weak thready pulse with a significant fall in blood pressure may indicate circulatory failure.



Instruments Used for Physical Examination (Table 1)

TABLE **1:** **Instruments used for physical examination**

Instruments	Purpose	Pictures of the instrument
Ophthalmoscope	Examining the eyes	
Otoscope	Examining ear	
Stethoscope	Auscultation (Listening to body sounds)	
Sphygmomanometer	To measure BP	

Contd...



Instruments	Purpose	Pictures of the instrument
Thermometer	To measure the body temperature	
Urinometer	To measure the specific gravity of urine	
Glucometer	To measure the blood glucose level	
Snellen chart	To measure the visual acuity	

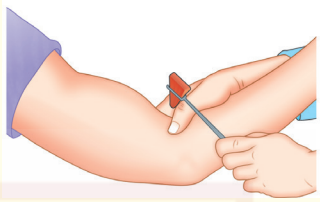
Contd...



Nursing Knowledge Tree
An Initiative by CBS Nursing Division

Reflexes (Table 2)

TABLE **2:** **Reflexes and responses**

Name of the reflex	Response	Picture of procedure
Biceps reflex	Tapping of biceps tendon causes contraction of muscle.	
Triceps reflex	Tapping over olecranon process causes straightening of upper arm.	
Patellar reflex	Tapping just below the knee (patella) causes forward kicking movement of leg.	
Achilles reflex	Tapping over the Achilles tendon causes downward jerky movement.	
Plantar reflex (Babinski reflex)	Stroking over the sole causes toe to bend downward, it is negative Babinski and is normal for adult. But in children, stroking over the sole causes toe to move upward and outward, that is called positive Babinski and is normal for children up to 2 years of age. Positive Babinski is considered abnormal for adults.	

Nursing Knowledge Hub
An Initiative by CBS Nursing Dept



Romberg's Test/Romberg's Sign (for Balance)

In this test, ask the person to stand with feet together and eyes closed. If the patient is able to maintain the equilibrium, then test is normal. But if the person falls down, then Romberg's test is positive which means patient has balancing problem.

Ear Examination

Weber test: Keep the base of the tuning fork at the forehead just at the bridge the of nose, forehead, or teeth after striking it on some hard surface.

- Equally heard at both ears – Normal
- Lateralize to affective ear – Conductive hearing loss
- Lateralize to unaffected ear – Sensorineural hearing loss

Rinne test: Keep the base of the vibrating tuning fork on the mastoid process (behind the ear) for counting time for bone conduction (BC) and when sound is not audible held the fork's stem in front of the ear until the sound is no longer audible to count time for air conduction (AC).

- AC >BC – Normal ear
- BC >AC – Conductive hearing loss

Note

Ensuring patient safety is the most important nursing intervention during **Romberg's test**. The nurse should stand close to the patient to prevent potential injury if the patient were to fall.

TYPES OF NURSING MODALITIES

Primary Nursing (Fig. 2)

- Each nurse is assigned to a small group of patients.
- The nurse assumes 24-hour responsibility for each patient's total care continuously until discharge (even when the nurse is technically off duty).
- She may be assisted by an associate nurse, but the primary nurse is contacted, if needed.
- **Common use areas:** Hospice care and home health.

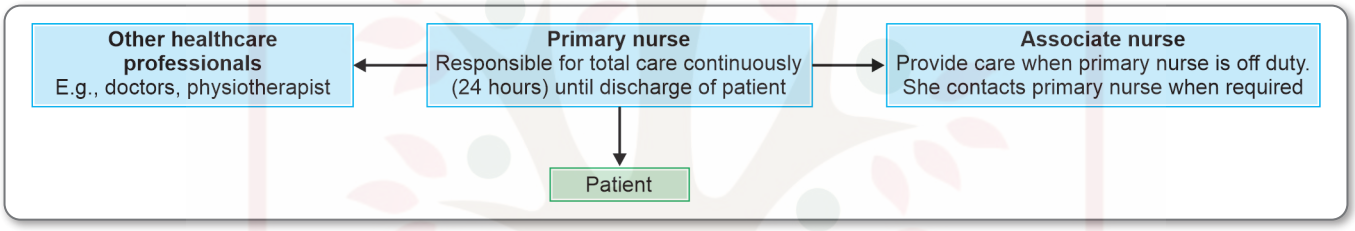


Figure 2: Primary nursing structure

Team Nursing (Fig. 3)

- A Head Nurse or Nurse Manager supervises and coordinates a team of nurses.
- The Nurse Manager assigns a group of patients to an individual nurse [Registered Nurse (RN)].
- Each nurse is responsible for most of each patient's care. Some of the duties are assigned to other nurses or nursing assistants.
- Includes nurses at all levels of knowledge, i.e., Registered Nurses, Practical Nurses and Nursing Assistants.

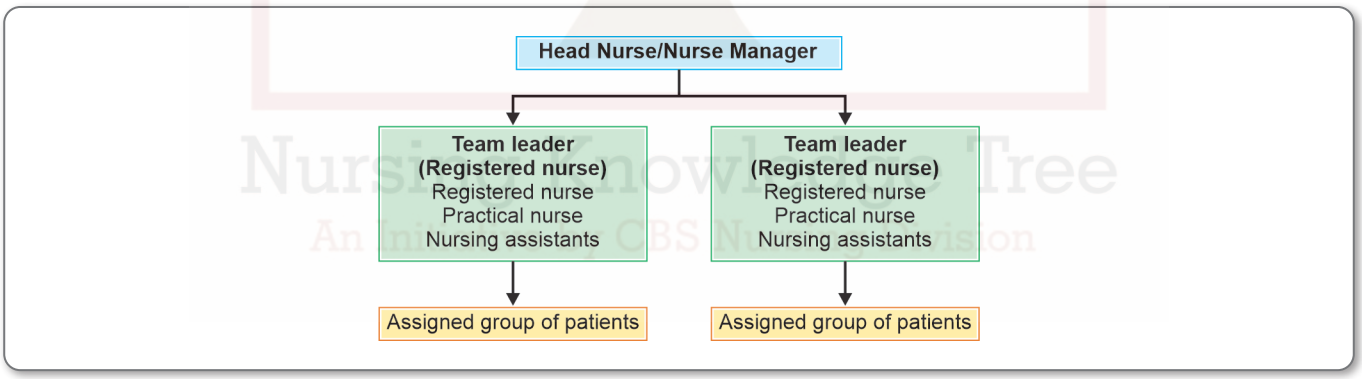


Figure 3: Structure of team nursing

Modular Nursing



- It is a modification of team nursing.
- Patient unit is divided into modules (geographical area/unit) with an RN as team leader.
- The same team of caregivers is consistently assigned to same geographic area.

Functional Nursing (Fig. 4)

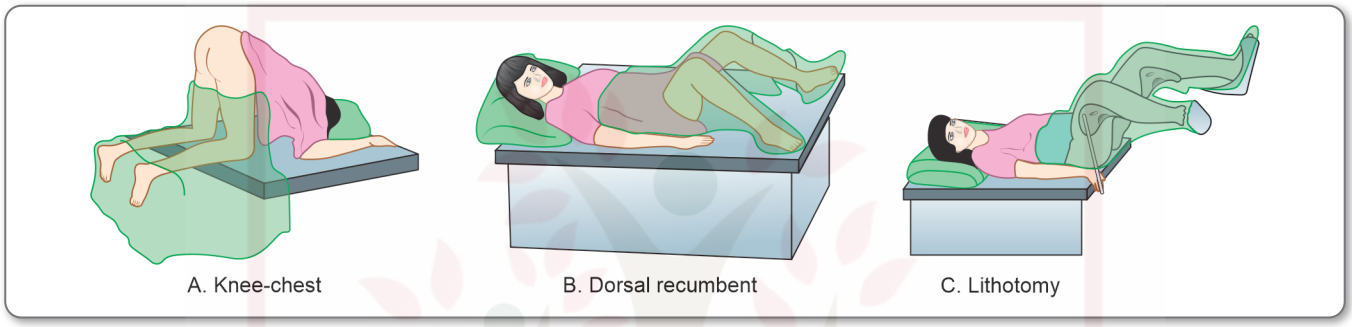
- Nurses are assigned a specific task and do only that duty.
- The nurse performs a particular task for every patient in the ward. For example, Medication Nurse, Dressing Nurse, IV Nurse, etc.
- Common use area: Operation theater.

Key Points

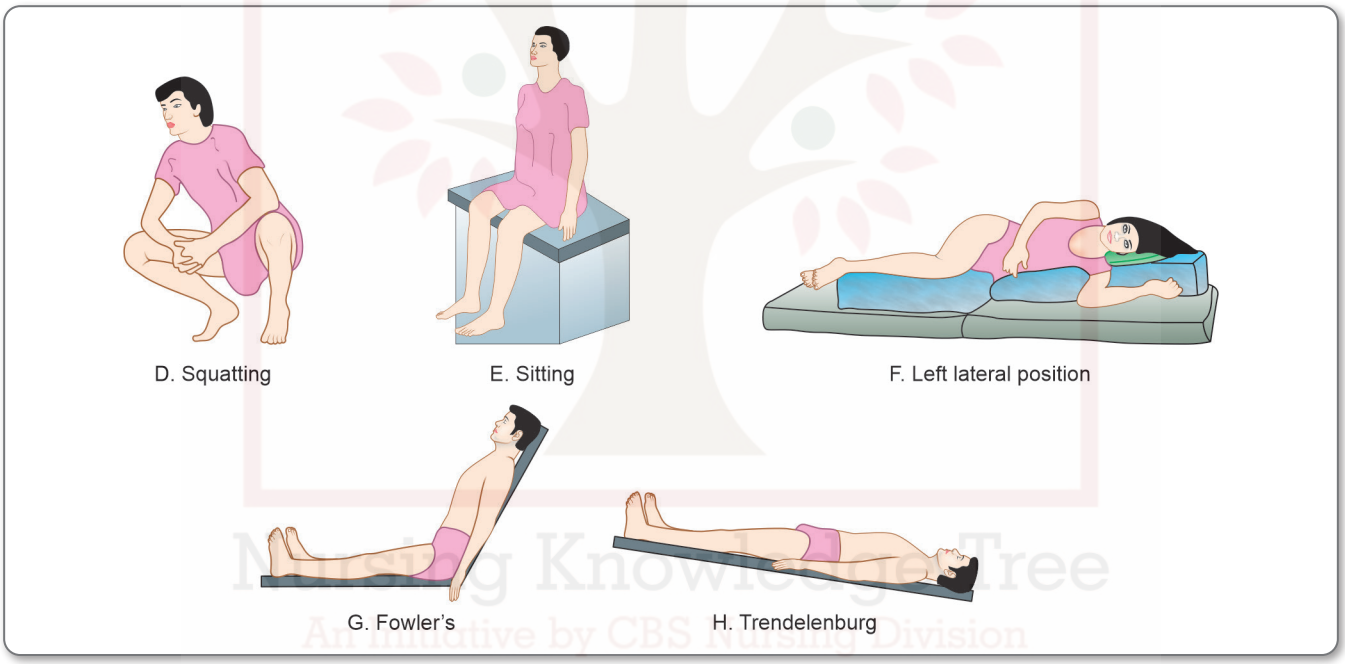
Application of **topical insulin** on wound and use of **waterproof ointment** during dressing is recommended (e.g., Zinc oxide) to treat pressure ulcer.

VARIOUS POSITIONS

There are various positions which are considered during assessing patient under medical intervention (Figs 14A to C and 14D to H)



Figures 14A to C



Figures 14D to H: Various positions of human body for observation

HOT AND COLD APPLICATION

There are two types of applications: Hot application and Cold application (Fig.15 and Table 14).

Hot Application

Hot application is the application of a hot agent, either in a moist or dry form on the surface of the body.

Purposes

- To relieve pain and congestion



Image-Based Questions

1. Instruments shown in photograph are best sterilized by: *[Recent Question 2014]*



a. Irradiation
b. Autoclaving
c. Hot air oven
d. Ethylene dioxide

2. Principle on which instrument shown in photograph cause sterilization:



a. Steam under pressure
b. Dry heat
c. Convection current in water molecules
d. Tyndallization

3. Instrument shown in photograph is used in public health for:



a. Head circumference
b. Mid arm circumference
c. Skin fold thickness
d. Cold chain temperature monitoring

4. Identify the apparatus used in pediatrics as shown in photograph:



a. Resuscitator
b. Nebulizer machine
c. Irradiance meter
d. Suction machine

5. Name the maneuver:



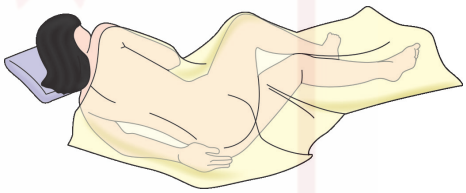
a. Semont maneuver
b. Heimlich maneuver
c. Epley maneuver
d. Chock maneuver

6. The diameter (size) of shown image starts from:



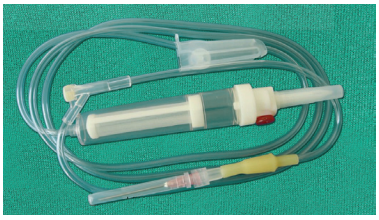
a. 4 mm
b. 4.5 mm
c. 5 mm
d. 5.5 mm

7. Identify the position shown in the photograph:



a. Trendelenburg position
b. Sim's position
c. Fowler position
d. Lloyd Davis position

8. What is this?



a. Intravenous fluid infusion set
b. Blood set
c. Arterial line
d. CVP line



Ans.

1. c
2. b
3. c
4. b
5. b
6. c
7. b
8. b

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

[*Courtesy*: PHOTON-20® 3th ed. by Vivek Jain, CBS Publishers and Distributors Pvt Ltd]

"He who has health has hope; and he who has hope has everything."
—Arabian proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

INTRODUCTION

1. **Which of the following phrase best describes 'the science of nursing'?**
   a. Application of clinical skills
   b. Holistic approach in patient care
   c. Body of nursing knowledge
   d. Art of specialized nursing care
2. **"Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings."**
   Which of the following Institution has given this definition regarding Nursing Professions in the year of 2002?
   a. INC b. WHO
   c. TNAI d. ICN
3. **Which of the following agency defines the nursing and its values as "Nursing is the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response"?**
   a. World Health Organization
   b. Indian Nursing Council
   c. American Nurse Association
   d. International Council of Nurses
4. **The Word "Nurse" is rendered from the Latin word "NutriX" which refers the actual meaning of:**
   a. Care b. Cure
   c. Nourish d. Nutritious
5. **The knowledge-based Nursing practices and core skills for this profession mainly depend on the:**
   a. Reporting and Documentation
   b. Research and Analysis
   c. Diagnosis, Intervention and Evaluation
   d. History collection and Assessment

Explanation: By performing the appropriate diagnosis for a condition and treating the condition with the actual intervention and evaluating the result will enhance the knowledge-based practice and limit the occurrence of error.

6. **International Council for Nurses was first established in the year of:**
   a. 1947 b. 1953
   c. 1952 d. 1956

HISTORY OF NURSING

7. **The first school of nursing was established by:**
   a. Virginia Henderson b. Theodor Fliedner
   c. Florence Nightingale d. Isabel Hampton

Explanation: In 1836, Pastor Theodor Fliedner established the Kaiserswerth School for Nursing in his parish in Kaiserswerth, Germany. It was one of the first formally established schools of nursing in the world. Florence Nightingale established St. Thomas' Hospital and the Nightingale Training School for Nurses in 1860.

8. **International day for nurses is celebrated on:**
   a. December 1 b. May 12
   c. June 2 d. May 1

Explanation: International Nurses Day is celebrated on May 12, which is the birth day of Florence Nightingale.

9. **Florence Nightingale was born on:**
   a. May 12th 1820 b. May 12th 1832
   c. April 7th 1820 d. June 7th 1842
10. **In 1860, Nightingale set up the first nursing training school at:**
    a. St. Thomas' Hospital, London
    b. University of Edinburgh
    c. Petersburg, Virginia
    d. None of the above
11. **ICN theme for International Nurses Day 2022 is:**
    a. Nurses: A Force for Change— A Vital Resource for Health
    b. Nurses: A Force for Change— Care Effective, Cost Effective
    c. Closing the Gap: Millennium Development Goals
    d. Nurses: A Voice to Lead - Invest in Nursing and Respect Rights to Secure Global Health

Explanation: ICN theme for International Nurses Day:

- 2022 - Nurses: A Voice to Lead - Invest in Nursing and Respect Rights to Secure Global Health
- 2021 - Nurses: A Voice to Lead - A Vision for Future Health care
- 2020 - Nurses: A Voice to Lead - Nursing the World to Health
- 2019 - Nurses: A Voice to Lead - Health for All
- 2018 - Nurses: A Voice to Lead - Health is a Human Right
- 2017 - Nurses: A Voice to Lead - Achieving the Sustainable Development Goals

LEGAL AND ETHICAL ASPECTS IN NURSING

12. **Which of the following is not a value essential for a professional nurse?**
    a. Human dignity b. Dependence
    c. Social justice d. Integrity

Explanation: Dependence is the state of relying on or being controlled by someone and it is an undesirable quality. The nurse is expected to have professional nursing values such as principles of human dignity, integrity, altruism, and justice.



Ans.

1. c
2. d
3. c
4. c
5. c
6. b
7. b
8. b
9. a
10. a
11. d
12. b

Nursing Knowledge Mission

13. The doctrine of informed consent deals with:
a. Full disclosure of all relevant facts to the patient
b. Informing higher authorities about the patient's condition
c. Notification of diseases
d. Patient confidentiality

Explanation: Informed consent is taken from the patient or significant others before conducting any type of invasive procedure to communicate full disclosure of relevant facts regarding the procedure. In this, the patient and/or their attendants are informed about the condition of the patient along with the possible treatment strategies and the expected prognosis.

14. Patient whose life is threatened and who is comatose is assumed to give what kind of consent for life-sustaining treatment?
a. Informed
b. Implied
c. Direct
d. Expressed

Explanation: Implied consent is an assumption of permission to do something that is inferred from an individual's actions rather than explicitly provided. In case of emergency when delayed treatment would be dangerous, informed consent is not needed.

15. Principles of ethical practice include the following; except:
a. Maleficence
b. Beneficence
c. Justice
d. Respect for autonomy

Explanation: Maleficence means to harm some and is opposite of nonmaleficence which means "to not harm". Maleficence should not be used as principle for performing nursing action. Nonmaleficence is an ethical principle that obliges one to not inflict intentional harm.

Beneficence refers to taking positive actions to help others.

Ethical principles include principle of respect for autonomy, principle of nonmaleficence, principle of beneficence, principle of justice, principle of veracity, etc.

16. All of the following are true regarding deontology; except:
a. It focuses on the consequences of actions
b. It encompasses natural law
c. It incorporates dutiful actions of an individual
d. It is also known as formalism

Explanation: Deontology is an ethical theory that says the morality of an action should be based on whether that action is right or wrong under a series of rules, rather than based on the consequences of the action.

17. Which of the following ethical principles refers to doing good to the client?
a. Beneficence
b. Nonmaleficence
c. Autonomy
d. Justice

Explanation:

- **Beneficence:** Doing good for the client
- **Nonmaleficence:** Doing no harm
- **Autonomy:** Self-determination of client
- **Justice:** Treat equally

18. Nurse fails to administer correct medication to the patient. This action is known as:
a. Negligence
b. Crime
c. Tort
d. Battery

Explanation: Negligence is a type of malpractice. It refers to doing of something which a reasonably prudent person would not do, or the failure to do something which a reasonably prudent person would do, under circumstances similar to those shown by the evidence.

- Crime is an action or omission which constitutes an offence and is punishable by law.
- A tort, in common law jurisdictions, is a civil wrong that unfairly causes someone else to suffer loss or harm resulting in legal liability for the person who commits the tortious act, called a tortfeasor.
- Battery is the unlawful and unwanted touching or striking of one person by another, with the intention of bringing about a harmful or offensive contact.

19. Immunization causes pain in child but it will also provide protection against certain diseases. Which of the following ethical principle is applicable here?
a. Justice
b. Beneficence
c. Nonmaleficence
d. Autonomy

20. Physician ordered blood transfusion for a client, but her father refused blood transfusion. Which among the following is the appropriate action by health care workers?
a. Try to make the father willing for blood transfusion
b. Get court order for blood transfusion
c. Do blood transfusion without listening to father
d. Abide by the father's wishes and inform the health care provider

21. A nurse administered a wrong dose of medication to a client. Upon realizing the mistake, she immediately reported to the authority and did incidental reporting. This shows:
a. Accountability
b. Responsibility
c. Authority
d. Decision making

22. The patient's right to refuse treatment is an example of:
a. Common law
b. Religion clause
c. Statutory law
d. Nursing Council Act

23. Code of ethics for registered nurse defines the:
a. Uniformity of care to all clients
b. Principles by which nurses' provide care to their clients
c. Protocols to be followed during nursing procedures
d. All of the above

24. Which of the following is the nurse's best legal safeguard?
a. Collective bargaining
b. Competent practice
c. Written or implied contracts
d. Patient education

PROFESSIONAL VALUES

25. Which one of the following is not an attribute of a professional?
a. Concerned with quantity
b. Concerned with quality of outcome
c. Independent
d. Self-directed



Ans.

13. a
14. b
15. a
16. a
17. a
18. a
19. b
20. d
21. a
22. a
23. b
24. b
25. a

Nursing Knowledge Tree
An Initiative by CBS Nursing Education

"Better ten times ill than one time dead."
—Yiddish



CHAPTER 5 ADVANCED NURSING PRACTICE AND GENETICS

SYNOPSIS

NURSING THEORIES

- "Theories are a set of interrelated concepts that give a systematic view of a phenomenon (an observable fact or event) that is explanatory and predictive in nature." —**Kerlinger**
- Nursing theories provide rationale for nursing interventions.
- Four concepts (metaparadigms of nursing) of nursing theory are:
  1. Person
  2. Environment
  3. Health
  4. Nursing

Classification of Nursing Theories

- **Meta theory:** It refers to 'theory of theories'. It focuses on philosophical issues and methodological issues of nursing theory, e.g., J. Dickoff 's and P. James's Theory of Theory.
- **Grand theory:** It is the most complex and broadest in scope, therefore, focuses on nonspecific and abstract concepts. Concepts lack operational definition, e.g., Orem, Roy and Roger's theory.
- **Middle range theory:** It targets specific concepts or phenomena, e.g. Hildegard Peplau theory of interpersonal relations.
- **Practice theory:** Least complex in nature. It addresses specific goals and explores specific actions needed to achieve it.

SUMMARY OF NURSING THEORIES

Refer to Table 1.

TABLE **1:** **Nursing theory: Summary**

Nursing Theorist and Name of theory	Year	Central Theme	Metaparadigm			
			Person	Health	Environment	Nursing
Hildegard Peplau **Theory:** Interpersonal relation theory	1952	• Theory of interpersonal relationship. • Interventions are directed to support therapeutic interpersonal relationship • 4 phases of development interpersonal relationship; ▪ **Orientation** ▪ **Identification** ▪ **Exploitation and** ▪ **Resolution**	Who wants to reduce stress caused by needs.	Forward movement of personality and other ongoing human processes in the direction of creative, constructive, productive, personal, and community living	Peplau advised to support patient's culture in hospital	Therapeutic interpersonal process between a sick person and a specially educated nurse who can help.
Virgina Henderson **Theory:** Nursing Need theory	1955	• **14 components of Need Theory** • Focus is on assisting the patient in performance of those activities contributing to health or its recovery. • Theory focuses on increasing the patient's independence.	Individual who needs care and assistance from nurses for becoming independent	A healthy person will be able to perform all 14 basic components of need independently.	• Not defined properly • Suitable environment is one of the 14 components of need theory	• Unique function to assist person in those activities which could have been done by the person if he/she was healthy.

Contd...

Nursing Theorist and Name of theory	Year	Central Theme	Metaparadigm			
			Person	Health	Environment	Nursing
Faye Abdellah **Theory:** Typology of 21 nursing problems	1960	• **Focus of Care Pendulum:** Swing the pendulum from disease centered to nursing centered approach • 21 nursing problem, divided in four components: **basic needs, sustainable care needs, remedial care needs, restorative care needs.** • Mentioned 10 steps of identifying patient needs and 11 nursing practice.	Receives nursing care	**Does not** define health	• Where the individual lives. • Society is a part of nursing planning	• Provision of comprehensive care by identifying the patient's problems from 21 nursing-problems (overt and covert problems)
Myra E Levine **Theory:** Conservative Model	1967	• **Nursing aims to** promote adaptation and maintain wholeness using the four principles of conservation • **i.e. Conservation of individual's** ▪ Energy ▪ Structural integrity ▪ Personal integrity ▪ Social integrity	Holistic being with unique thoughts, believes, feeling.	• Wholeness • Successful achievement of normal health by adapting the change.	Internal and external environment plays significant role in person's adaptation	• It is directed to conserve physical and psychological well-being of patients to achieve "Wholeness".
Dorothy E. Johnson **Theory:** Behavior system Model	1968	• Focus on adaptation and maintenance of effective behavioral pattern. • 7 sub-system – Attachment/ affiliative, dependency, ingestive, eliminative, sexual, aggressive and achievements. • 5 principles – wholeness and order, reorganization, stabilization, dialectical contradiction and hierarchic interaction.	Includes two systems • Biological system – Effected by pharmacology • Behavioral system – Effected by nursing	• Adaptive behavior to environmental stimuli for maintaining comfort and stability.	• All elements which influence the health that may or may not be part of behavior system of individual.	• Maintain stability in individual's behavior system during illness.
Martha Roger **Theory:** Science of Unitary human Beings	1970	**Principles of homeodynamics:** Understanding Human being. Three principles are: • *Integrality:* "Continuous mutual interactions between man and environment" • *Resonance:* Wave pattern is continuously changing from lower to higher frequency in human and energy fields. • *Helicy:* The change is continuous and unpredictable.	Irreversible, irreducible and pandimensional energy field with a single unique pattern of wave which is abstract subjects.	Result of life process.	According to Rogers "irreducible, invisible and pandimensional energy field identified by pattern and integral with the human field".	"An art and science that is humanistic and humanitarian" Nursing process includes 3 components: **Assessment, voluntary mutual patterning and evaluation.**

Contd...



"Three things in life – your health, your mission, and the people you love…. That's it."
—Naval Ravikant



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

NURSING THEORIES

1. Which of the following is a model based on an individual's relationship to stress the reaction to it and reconstitution factors that are dynamic in nature? *(AIIMS-BBS SNO 2019)*
a. Parse's Human Becoming Theory
b. Universality Theory
c. Roy's Adaptation Model
d. Neuman's System Model

2. The theory which intends to provide a unifying focus for approaching a wide range of nursing concerns and for understanding fundamental nursing phenomena: the client, the environment, health and nursing is: *(AIIMS Raipur Grade II 2017)*
a. Roy's theory of nursing
b. Neuman's theory of nursing
c. Nightingale's theory of nursing
d. Scudder theory of nursing

Explanation: The Neuman's Systems Model views the client as an open system that responds to stressors in the environment. Roy's theory of nursing sees the individual as a set of interrelated systems such as biological, psychological and social. Florence Nightingale developed Environmental theory of nursing which believed "Healthy surroundings (environment) were necessary for proper nursing care." Scudder theory of nursing describes discipline of nursing should be a human science because it studies how nurses care for patients.

3. "The unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recover". This definition of nursing is stated by:
a. Florence Nightingale b. Dorothea Orem
c. Virginia Henderson d. Callista Roy

4. "The act of assisting others in the provision and management of self-care to maintain or improve human functioning at home level of effectiveness". The given statement regarding the Nursing professional is proposed by:
a. Florence Nightingale b. Dorothea Orem
c. Virginia Henderson d. Callista Roy

5. The definition given by the Florence Nightingale mainly focuses on:
a. Love and affection
b. Evidence based practice
c. Reliable and valid care
d. Utilizing the environment for Recovery.

6. The theory that involves care and helps through which the client attains total self-care is: *(AIIMS Raipur NO 2019)*
a. Nightingale's theory b. Orem's theory
c. Peplau's theory d. Roy's theory

Explanation:

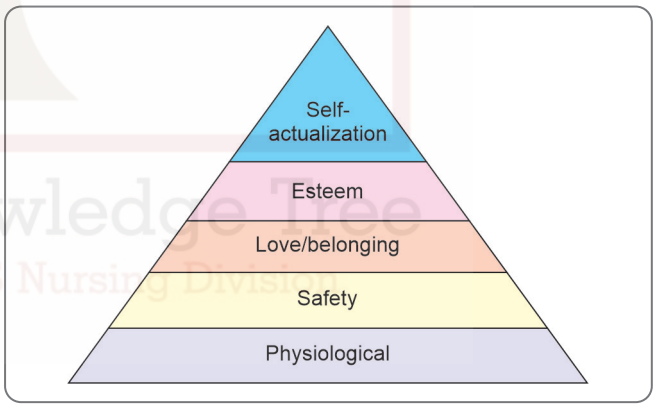
TABLE: **Theorists and theories**

Theorists	Theories
Orem's theory	Self-care deficit theory which helps client to attain total self-care.
Nightingale's theory	Environment as the focus of nursing care.
Peplau's theory	Focuses on interpersonal relationship.
Roy's theory	Roy developed an adaptation model, known as RAM.

7. In Maslow's hierarchy of physiologic needs, the human need of greatest priority is: *(RAK MSc 2018)*
a. Love b. Elimination
c. Nutrition d. Oxygen

Explanation: As per Maslow's hierarchy of needs, physiological needs must be met first. These include food, water, oxygen, warmth and rest. Out of all of options, oxygen is the highest priority as it is must for survival. Without oxygen, survival is not possible even for few minutes.

8. Highest level of need according to Maslow's hierarchy is:
a. Physiologic needs b. Safety and security
c. Love and belongings d. Self-actualization



Explanation: Self-actualization is the highest need as per Maslow.

9. The four major concepts in nursing theory are:
a. Nursing, Physician, Environment, Patient
b. Nursing, Person, Environment, Cure
c. Nursing, Person, Environment, Health
d. Prevention, promotion, Treatment, Rehabilitation



Ans.
1. d
2. b
3. c
4. b
5. d
6. b
7. d
8. d
9. c

Nursing Knowledge Tree
BBS Nursing Division

10. **'Nursing is a theoretical body of knowledge that prescribes analysis and action to care for an ill person'. This is proposed by:**
    a. Callista Roy b. Virginia Henderson
    c. Martha Rogers d. Betty Neuman
11. **Adaptation Model of Nursing with Five major needs for human physiology was developed by .....**
    a. Callista Roy b. Betty Neumann
    c. Dorothea Orem d. Henderson
12. **Who defined that 'the nurse/patient relationship evolves through orientation, identification, exploitation and resolution':**
    a. Madeleine Leininger b. Dorothea Orem
    c. Hildegard Peplau d. Betty Neuman
13. **A system model that focuses on the response of the client system to actual or potential environmental stressors was developed by:**
    a. Martha Rogers b. Betty Neuman
    c. Dorothea Orem d. Virginia Henderson
14. **Self-care theory was developed by:**
    a. Dorothea Orem b. Callista Roy
    c. Martha Rogers d. Betty Neuman
15. **Four conservation principle, i.e., energy, structural integrity, personal integrity and social integrity was described by:**
    a. Leininger b. Peplau
    c. Levine d. Rogers
16. **The most basic need based on Maslow's basic human needs hierarchy is:**
    a. Love and belonging b. Safety and security
    c. Physiologic d. Self-actualization
17. **Components of paradigm of nursing include:**
    a. The person, health, environment, and physician
    b. Health, theory, concepts, and physician
    c. The person, health, environment and nursing
    d. Nurses, physicians, health, and concepts
18. **Example of middle range theory is**
    a. Orem's self-care
    b. Rogers' theory
    c. Florence Nightingale's theory
    d. Peplau's theory
19. **The theory which focuses on nonspecific and abstract subject is called as**
    a. Meta theory b. Grand theory
    c. Practice theory d. Middle-range theory
20. **14 Basic components of need were described by:**
    a. Abraham Maslow b. Virginia Henderson
    c. Florence Nightingale d. Jean Watson
21. **"Nursing is an art and science" – this is stated by:**
    a. Jean Watson b. Callista Roy
    c. Martha Rogers d. Levine
22. **Which theory mentioned about "Typology of 21 nursing problems"?**
    a. Jean Watson b. Levine
    c. Abdellah d. Henderson
23. **Behavior system theory focus on –**
    a. 14 basic needs
    b. Therapeutic Interpersonal relationship
    c. Philosophy and Science of caring
    d. Effective behavior adaptation
24. **According to Rogers' theory, which of the following principle describes "the unpredictable, nonlinear evolution of energy fields"?**
    a. Integrality b. Helicy
    c. Pattern d. Resonance
25. **Which subsystem does not include in Johnson's Behavioral System Model?**
    a. Dependency b. Stabilization
    c. Ingestive d. Eliminative
26. **According to Johnson, a person or client is:**
    a. Behavior system
    b. Wholeness
    c. Pandimensional energy field
    d. Interpersonal-integrative system
27. **"Transaction Process Model" is mentioned by:**
    a. Levine b. King
    c. Orem d. Peplau
28. **The correct sequence of phases of Interpersonal Relationship development as per Peplau is:**
    a. Orientation, exploitation, identification and resolution
    b. Orientation, identification, exploitation and resolution
    c. Identification, exploitation, resolution and orientation
    d. Identification, orientation, exploitation and resolution
29. **According to Levine, nursing is a process of:**
    a. Meeting self-care needs
    b. Human interaction to set goals and achieve them
    c. Conservation of client's physical and psychological well-being
    d. Development of therapeutic interpersonal relationship
30. **"Transpersonal care relation" is mentioned by:**
    a. Jean Watson
    b. Dorothy E Johnson
    c. Dorothea Orem
    d. Peplau
31. **Select the correct statement about Jean Watson theory:**
    a. Integrate body, mind and spirit
    b. Behavior modification to prevent illness
    c. Person's character depends on wave pattern of energy field
    d. Adaptation with changing environment
32. **"The Sunrise Enabler to Culture Care Sunrise Model" is mentioned in:**
    a. Behavioral system model
    b. Conservative model
    c. Goal attainment theory
    d. Transcultural nursing theory
33. **According to Betty Newman System Model, Person is a:**
    a. Open system consists of many variables
    b. Human beings who set goals and select best alternatives
    c. Irreversible, pandimensional energy field
    d. Human beings with power of self-healing
34. **"Science of unitary human being" theory is given by:**
    a. Rogers b. King
    c. Orem d. Levine
35. **Which theory mentioned about "Focus of Care Pendulum"?**
    a. Jean Watson
    b. Levine
    c. Abdellah
    d. Henderson



Ans.

10. a
11. a
12. c
13. b
14. a
15. c
16. c
17. c
18. d
19. b
20. b
21. c
22. c
23. d
24. b
25. b
26. a
27. b
28. b
29. c
30. b
31. a
32. d
33. a
34. a
35. c

Nursing Knowledge Free
Available by CBS Nursing

NERVOUS SYSTEM

ANATOMY AND PHYSIOLOGY OF NERVOUS SYSTEM

Neuron

- Basic functional unit of the nervous system.
- **Dendrite:** A branch-like structure for receiving electrochemical message.
- **Axon:** Long projections which carry impulses away from cell body.
- **Synapse:** It is the specialized junction between neurons.
- **Myelin:** A fatty material that acts as an insulator and conductor to speed up the process of communication.
- **Synaptic cleft/synaptic gap:** It is the space between neurons at which nerve impulses are transmitted by neurotransmitters.

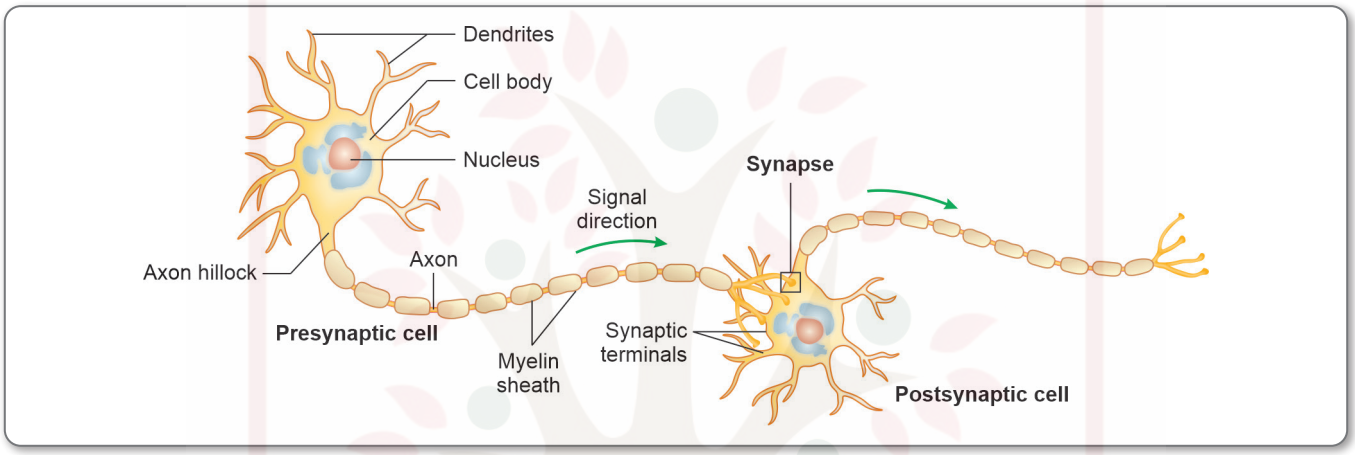


Figure 34: Structure of a neuron

Neurotransmitter

- Neurotransmitter helps to communicate information between two neurons.
- Neurotransmitters are synthesized and stored in synaptic vesicles.

CLASSIFICATION OF NERVOUS SYSTEM

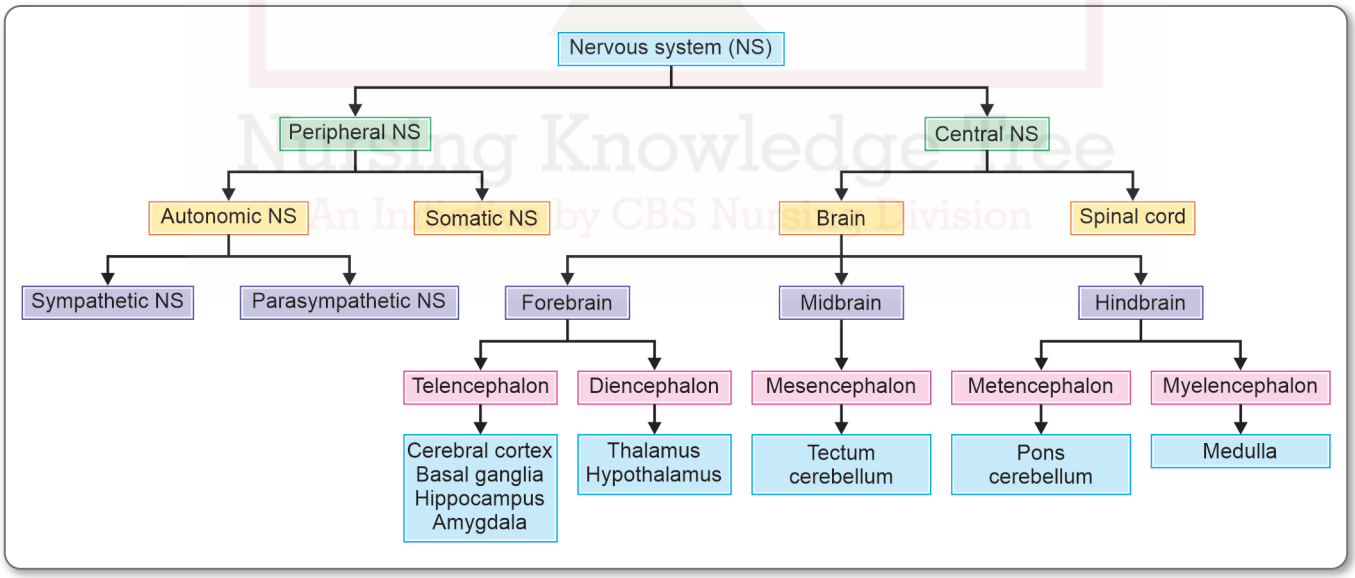


Figure 35: Classification of nervous system

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

Brain

- Brain is divided into three major areas:
  1. **Cerebrum** – Composed of two hemispheres, thalamus, hypothalamus and basal ganglia
  2. **Cerebellum** – Located under cerebrum and behind the brainstem
  3. **Brainstem** – Includes midbrain, pons and medulla

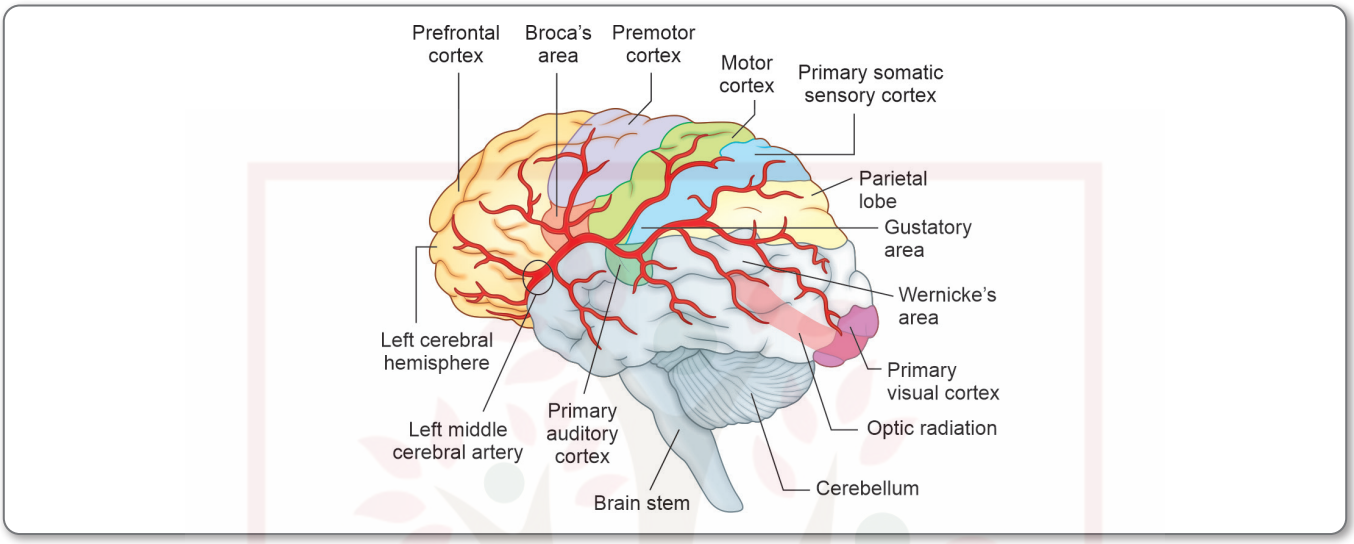


Figure 36: Brain structures

Key Points

- Auditory lobe is found in **temporal lobe**.
- Wernicke's area (temporal lobe) of the brain is involved in the understanding of meaning.
- The temporal lobe regulates memory and learning problems because of the integration of the **hippocampus.**
- Visual area is found in **occipital lobe**.
- Broca's area of speech (production of speech) is located in the **frontal lobe.**
- Hypothalamus contains temperature control center of the body.

Cerebrum

- It consists of two hemispheres, right and left hemispheres.
- Right-handed persons are having dominant left hemisphere.
- **Corpus callosum** connects both hemispheres.
- **Gyri** - Outside wrinkled (folded) appearance of cerebral hemisphere. This folded appearance increases the surface area of brain.
- **External surface** or cerebral cortex is made up of **grey matter,** i.e., cell bodies.
- **Inner surface** or white matter is made up of **nerve fibers.**
  - **Thalamus**
    - It lies on either side of the third ventricle.
    - It is the relay center for all information **except smell**.
    - Pain gate and reticuloendothelial system (RAS) are also the part of this lobe.
  - **Hypothalamus**
    - Lies inferior and anterior to thalamus
    - It contains **optic chiasm** and mammillary bodies
    - Involved in **temperature regulation**
    - **Hunger center** is in hypothalamus.
  - **Basal ganglia**
    - Located deep in cerebral hemisphere
    - It is responsible for fine motor movements of upper and lower extremities
- The cerebral hemispheres are divided into frontal, parietal, temporal and occipital lobes.

TABLE **27:** **Functions of each lobe of cerebral hemisphere**

Lobe	Function
Frontal lobe	• Largest lobe • Concentration, abstract thought, information storage, memory, motor function, affect, personality and inhibitions. • Broca's area of speech (production of speech) is located in this lobe.
Parietal lobe	• Sensory cortex is present in this lobe • Helps in individual's awareness of the body in perception of taste, space, orientation and spatial relationship.
Temporal lobe	• Auditory receptive area. • Wernicke's area for language development is in this lobe.
Occipital lobe	• Visual interpretation.

Cerebellum

- Cerebellum is separated from cerebrum by tentorium cerebelli.



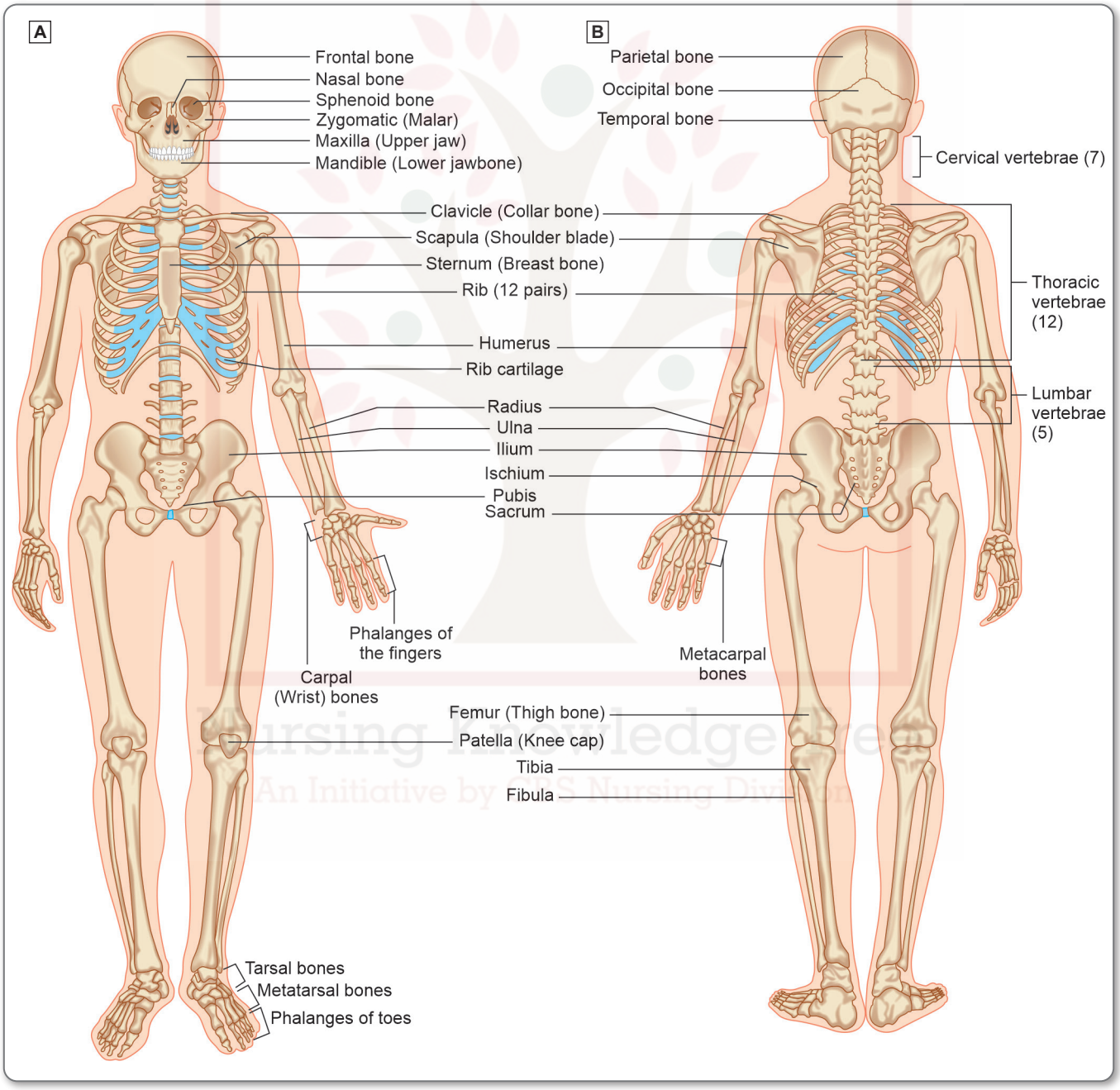
- **Flaccid neurogenic bladder**
  - Injury on lower motor neuron
  - Bladder won't contract forcefully. Leads to overflow incontinence.
- **Complications:** UTI, renal calculi, Vesicoureteral Reflux (VUR), renal failure
- **Management:** Catheterization and adequate fluid intake.

Vesicoureteral Reflux

- Retrograde or back flow of urine from bladder to ureter even sometimes to kidney is known as VUR.
- **Features of recurrent VUR:** UTI, palpable renal mass, and renal failure
- **Diagnosis:** Voiding cystourethrogram, uroflowmetry.

MUSCULOSKELETAL SYSTEM

ANATOMY AND PHYSIOLOGY OF MUSCULOSKELETAL SYSTEM



Figures 62A and B: Skeletal system of human body: A. Anterior view; B. Posterior view

"Man needs difficulties; they are necessary for health."
—Carl Jung



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

CARDIOVASCULAR SYSTEM

ANATOMY OF HEART

1. Specialized cardiac muscles are present in layer of the heart.
a. Epicardium b. Myocardium
c. Endocardium d. Pericardium

2. Posterior surface of heart is formed by:
a. RA b. LA
c. LV d. RV

Explanation: Posterior surface of the heart and base of the heart is formed by left atrium.

3. Coronary sinus opens into:
a. Inferior vena cava b. Right atrium
c. Left atrium d. Great cardiac vein

4. What is the normal amount of pericardial fluid?
a. 5–10 ml b. 20–50 ml
c. 50–100 ml d. 100–200 ml

5. The heart valves are lined by ..... layer of the heart.
a. Epicardium b. Myocardium
c. Endocardium d. Pericardium

6. Valve between left atrium and left ventricle is:
a. Bicuspid valve b. Tricuspid valve
c. Tetracuspid valve d. Monocuspid valve

Explanation:
- Valve between left atrium and left ventricle is bicuspid valve which is also known as mitral valve.
- Valve between right atrium and right ventricle is tricuspid valve.
- Valve located between pulmonary artery and right ventricle is semilunar valve.
- Valve located between aorta and left ventricle is also known as semi-lunar valve.

7. Valve responsible for murmurs which auscultates at the second left intercostal space along the left sternal border is:
a. Aortic b. Bicuspid
c. Pulmonic d. Tricuspid

8. The closure of the aortic valve in the arterial waveform is denoted by:
a. Anaerobic notch b. Dicrotic notch
c. Systolic notch d. End diastolic point

9. The arteries that supply the heart muscles are branches of the:
a. Abdominal aorta b. Thoracic aorta
c. Aortic arch d. Ascending aorta

10. "Potential anastomosis" seen in:
a. Labial branch of facial artery
b. Intercostal artery
c. Coronary artery
d. Arterial arcades of mesentery

11. Identify the artery that carries deoxygenated blood
a. Umbilical artery b. Pulmonary artery
c. Both a and b d. Carotid artery

12. Blood supply to the heart is maintained by:
a. Pulmonary b. Coronary
c. Aorta d. Myocardial

13. Posterior communicating artery is branch of:
a. Internal carotid artery b. External carotid artery
c. Middle cerebral artery d. Posterior cerebral artery

14. Right coronary artery supplies all; except:
a. Apex of heart b. Intraventricular septum
c. Inter atrial septum d. SA node

15. Pacemaker of heart is: *(JIPMER 2012)*
a. AV node b. SA node
c. Purkinje fibers d. Parasympathetic system

Explanation: Pacemaker of the heart is SA node. It is located in the wall of the right atrium.

16. Slowest conduction is in:
a. SA node b. Purkinje fibers
c. AV node d. Bundle of His

17. Distention and recoil of blood vessel during systole and diastole is achieved through the ..... property of blood vessel.
a. Peripheral vascular resistance
b. Elasticity
c. Diameter
d. Smooth muscle contraction

18. Vasoconstriction leading to increased blood pressure is triggered by the following situation:
a. Stimulation of the parasympathetic nerve supply.
b. Stimulation of the cardioinhibitory center in the medulla.
c. Increased levels of angiotensin II in the blood.
d. Increased level of carbon dioxide in the blood.

19. Baroreceptors help in:
a. Stimulating respiration
b. Stimulating sweating
c. Maintaining BP
d. Stimulating thirst

20. Arterial supply to SA node is by:
a. Left anterior descending coronary artery
b. Posterior interventricular (descending) artery
c. Left coronary artery
d. Right coronary artery



Ans.

1. b
2. b
3. b
4. b
5. c
6. a
7. c
8. b
9. d
10. c
11. c
12. b
13. a
14. a
15. b
16. b
17. b
18. c
19. c
20. d

Nursing Knowledge Hub
An Initiative by CBS Nursing Notes

21. Normal cardiac Output in a healthy adult is:
a. 1 L/ min
b. 3 L/min
c. 5 L/min
d. 7 L/min

22. Time duration of cardiac cycle is:
a. 0.5 sec
b. 0.8 sec
c. 1 sec
d. 2 sec

23. The blood circulation that is responsible for gas exchange between alveoli and capillaries resulting in the oxygenation of blood is the:
a. Coronary circulation
b. Hepatic circulation
c. Pulmonary circulation
d. Systemic circulation

24. Blood from the right side of the heart flows into the:
a. Superior vena cava
b. Pulmonary trunk (artery)
c. Pulmonary veins
d. Aorta

25. The amount of blood that is ejected from the left ventricle in one contraction is called the:
a. Cardiac output
b. Stroke volume
c. Preload
d. Afterload

26. Cardiac Output can be calculated using:
a. CO = tidal volume X-heart rate
b. CO = tidal volume X-peripheral vascular resistance
c. CO = peripheral vascular resistance X-heart rate
d. CO = stroke volume X-heart rate

27. The venous blood from organs of the digestive system such as the stomach and intestines will drain into the:
a. Portal vein
b. Mesenteric veins
c. Internal iliac veins
d. Lumbar veins

28. Oxygen is carried by blood after it is combining with:
a. Albumin
b. WBC
c. Hemoglobin
d. Platelet

29. What is preload?
a. Pressure in the ventricle at the end of systole
b. Pressure in the ventricle at the end of diastole
c. Pressure in the aorta at the end of systole
d. Pressure in the atria at the end of systole

30. The formula for ejection fraction is:
a. $\mathbf{EF} = \frac{\text{Stroke Volume}}{\text{End Diastolic Volume}}$
b. $EF = \frac{\text{Stroke Volume}}{CO \times \text{Heart Rate}}$
c. $EF = \frac{\text{Diastolic Volume}}{CO \times \text{Heart Rate}}$
d. $EF = \frac{\text{End systolic Volume}}{\text{Stroke Volume}}$

31. Most common sign associated with decreased cardiac output is:
a. Shortness of breath
b. Peripheral edema
c. Cardiac murmurs
d. Arthritis

32. When listening to heart sound, you can best hear sound, at the:
a. Base of the heart
b. Apex of heart
c. Aortic area
d. IInd ICS to the left of sternum

33. Ventricular gallop:
a. S1
b. S2
c. S3
d. S4

34. S2 heart sound corresponds to:
a. Closure of the aortic and pulmonic valve
b. Closure of the aortic valve
c. Closure of the mitral and tricuspid valve
d. Closure of the mitral valve

Explanation

Normal heart sounds:
- S1 (First Heart sound-LUBB) produced by closure of AV valves (Tricuspid and mitral)
- S2 (Second Heart sound-DUBB) produced by closure of Semilunar valves (aortic and pulmonic valve)

Abnormal heart sounds:
- **S3** (Third heart sound) Also known as **ventricular gallop.** It corresponds to early ventricular filling (passive filling) when mitral valve opens. It is often associated with **Heart failure.**
- **S4** (Fourth heart sound) Also known as Atrial gallop.

35. Connection between artery and vein is known as:
a. Capillaries
b. Arterioles
c. Venules
d. Lymph

36. The network between the arteries that supplying to a particular area is known as:
a. Collateral arteries
b. Anastomoses
c. Capillary networks
d. Vena-caval junction

37. Identify the blood vessel which carry blood into right atrium
a. Inferior vena cava
b. Superior vena cava
c. Pulmonary vein
d. Both a and b

38. Identify the blood vessel which carries blood into left atrium
a. Inferior vena cava
b. Superior vena cava
c. Pulmonary vein
d. Both a and b

39. Posterior cerebral artery is a branch of which of these?
a. Vertebral artery
b. Basilar artery
c. Posterior cerebral artery
d. Posterior choroidal artery

40. Terminal branch of Internal Carotid Artery:
a. Anterior choroidal artery
b. Anterior cerebral artery
c. Ophthalmic artery
d. Inferior hypophyseal artery

41. Smallest vein is:
a. Venules
b. Capillaries
c. Lymph
d. Arterioles

Explanation: Smallest vein is venules. Smallest artery is arterioles.



Ans.

21. c
22. b
23. c
24. b
25. b
26. d
27. a
28. c
29. b
30. a
31. a
32. b
33. c
34. a
35. a
36. a
37. d
38. c
39. b
40. b
41. a

Nursing Knowledge Tree
An Initiative by CBS Nursing

"It is health that is real wealth and not pieces of gold and silver."
—Mahatma Gandhi

CHAPTER 6

MEDICAL SURGICAL NURSING/ADULT HEALTH NURSING

SYNOPSIS

CARDIOVASCULAR SYSTEM

ANATOMIC AND PHYSIOLOGIC OVERVIEW OF HEART

- Heart is a cone shaped, hollow muscular organ located in the mediastinal space between the lungs and rests on the diaphragm.
- **Size:** 12 cm long × 8 cm width × 6 cm thickness
- **Weight:** About 300 gm

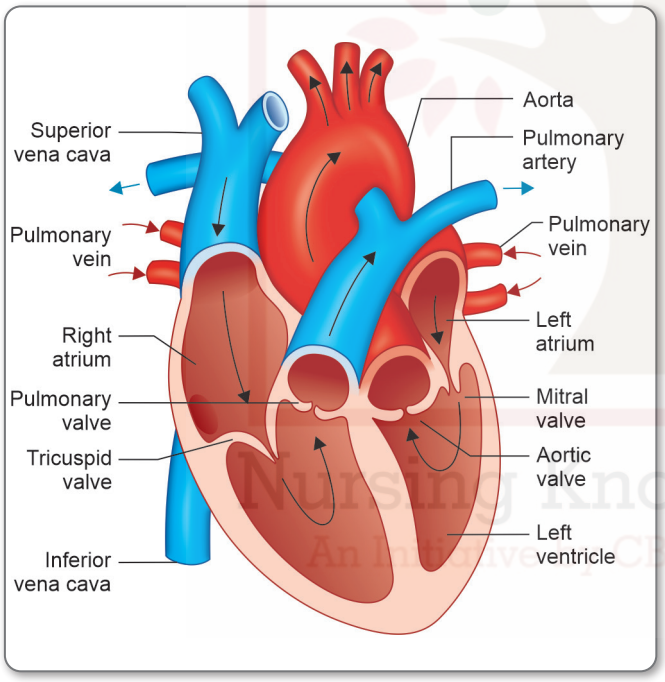


Figure 1: Anatomy of heart

Layers of Heart

- **Pericardium:** Outer most layer of heart; covering of heart; consists of three layers:
  1. Fibrous pericardium (outermost layer)
  2. Parietal pericardium (middle layer)
  3. Visceral pericardium (epicardium)

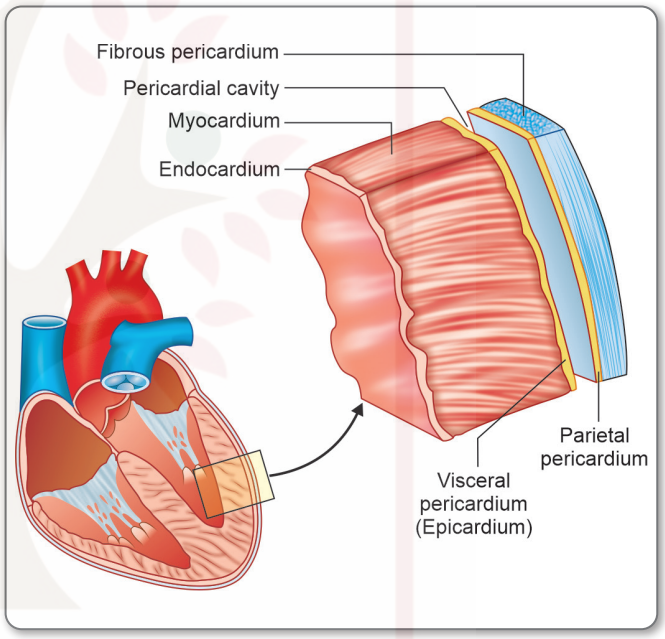


Figure 2: Cross section of heart showing its layers

- **Myocardium:** Middle layer of heart wall. Thickest layer of the heart wall. It is responsible for pumping action.
- **Endocardium:** Inner most layer of heart wall.

Heart Chambers

- It has four chambers:
  - 2 Atria (Right atrium and Left atrium)
  - 2 Ventricles (Right ventricle and Left ventricle)
- Left ventricle is the thickest chamber (10–15 mm)
- **Apex of the heart:** Conical area created by left ventricle. The apex is located near the mid-clavicular line in the 5th intercostal space.
- **Base of the heart:** Upper border of the heart is formed by left atrium. Lies just below the 2nd rib.

Target High MSc Entrance

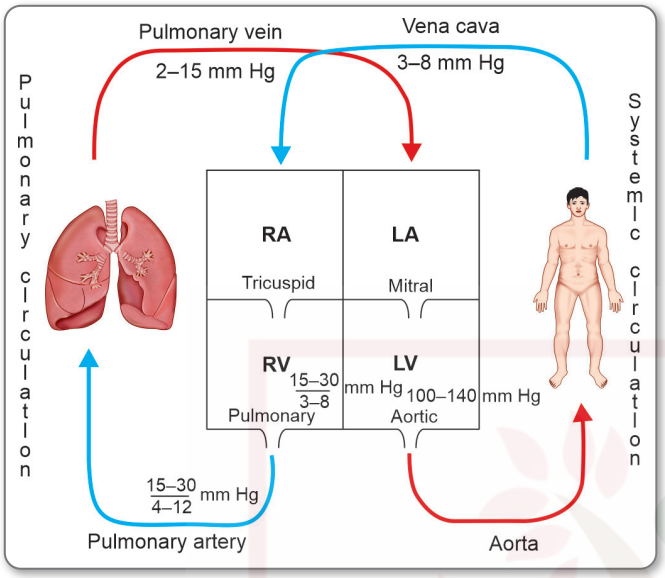


Figure 3: Schematic diagram of blood circulation in the heart

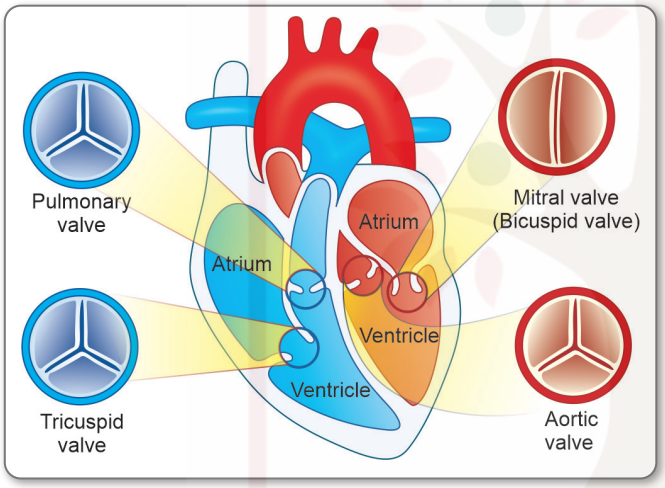


Figure 4: Valves of heart

Heart Valves

- **Two Atrio-ventricular (AV) valves**
  - **Bicuspid valve (Mitral valve):** Between left atrium and left ventricle
  - **Tricuspid valve:** Between right atrium and right ventricle
- **Two Semi-lunar valves** (half-moon shaped leaflet)
  - **Pulmonary valve:** Between pulmonary artery and right ventricle
  - **Aortic valve:** Between aorta and left ventricle

Coronary Arteries

- Left and right coronary arteries and their branches supply arterial blood to the heart.
- These arteries arise from aorta just above the aortic leaflet.
- Coronary arteries receive blood supply during diastole.
- Left coronary artery has three branches:
  1. Left main coronary artery
  2. Left anterior descending artery (supply anterior wall of the heart)
  3. Circumflex artery (supply lateral wall of the heart).
- Right side of heart receives blood supply from right coronary artery.
- Posterior wall of the heart receives blood from posterior descending artery.
- Venous supply from the heart returns blood to the right atrium via coronary sinus located behind the right atrium.

Cardiac Conduction System

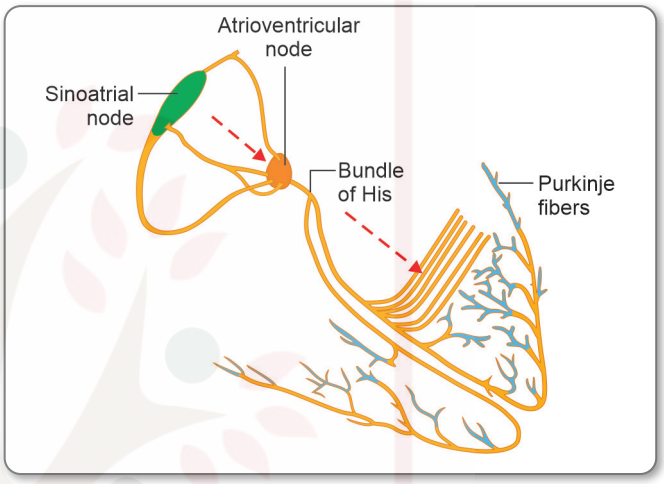


Figure 5: Cardiac conduction system

- Characteristics of cardiac conduction include:
  - **Automaticity:** Ability to initiate an electrical impulse
  - **Excitability:** Ability to respond to an electrical impulse
  - **Conductivity:** Ability to transmit electrical impulse from one cell to another.
- **SA node (Sino-Atrial node)**
  - It is the primary pacemaker of the heart.
  - Located at the junction between superior vena cava and right atrium.
  - SA node generates impulse at a rate of 60–100 per minute.
  - Electrical impulse is generated at SA node and conducted to AV node via inter nodal pathway.
- **AV node** (Atrio-Ventricular node)
  - Located in the right atrial wall near tricuspid valve.
  - AV node coordinates the incoming impulse from SA node.
  - After a slight delay, relays the impulses to ventricles.
- **Bundle of His**
  - Present in the septum between right and left ventricle.
  - It conducts the impulses received from AV node to Purkinje fibers.
  - It is divided into right and left bundle branch.
- **Purkinje fibers**
  - Terminal part of conduction system
  - Myocardial cells are stimulated causing cardiac contraction.

Note

Conduction of electrical impulse is fastest in Purkinje system (4 m/sec)

Nursing Knowledge Hub
An Initiative by CBS N

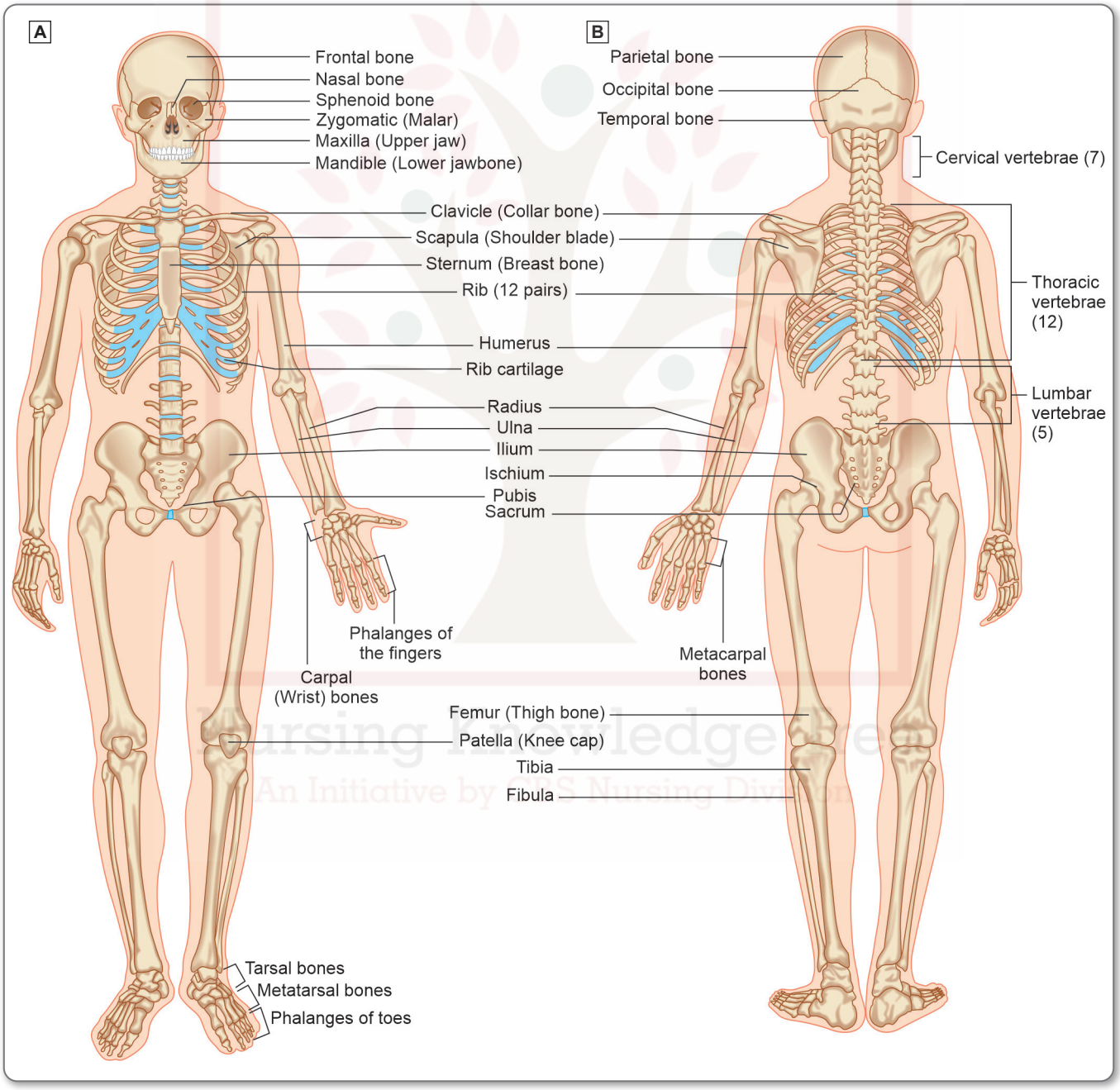
- **Flaccid neurogenic bladder**
  - Injury on lower motor neuron
  - Bladder won't contract forcefully. Leads to overflow incontinence.
- **Complications:** UTI, renal calculi, Vesicoureteral Reflux (VUR), renal failure
- **Management:** Catheterization and adequate fluid intake.

Vesicoureteral Reflux

- Retrograde or back flow of urine from bladder to ureter even sometimes to kidney is known as VUR.
- **Features of recurrent VUR:** UTI, palpable renal mass, and renal failure
- **Diagnosis:** Voiding cystourethrogram, uroflowmetry.

MUSCULOSKELETAL SYSTEM

ANATOMY AND PHYSIOLOGY OF MUSCULOSKELETAL SYSTEM



Figures 62A and B: Skeletal system of human body: A. Anterior view; B. Posterior view

SURGICAL NEEDLES

All surgical needles have three basic components:

- Eye (or Swage)
- Body
- Point

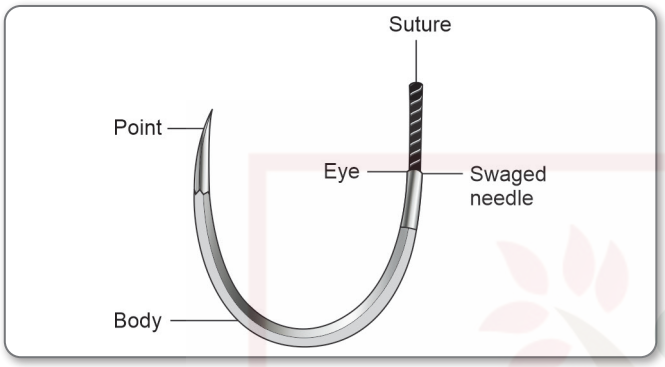


Figure 115: Basic needle design

- **Round-bodied:** For soft (subcutaneous) tissues such as muscle, fascia, and mucus membrane. The middle of the needle is flat for better seating in the needle holder and easy entry.
- **Cutting:** For firm tissue, sclerotic vessels and prostheses.
- **Trocar:** Trocar needles have a sharp tip but a round body. They are useful necessary to perforate tough tissue.
- **Spatula needle:** For ophthalmic and microsurgery flattened needle body hand ground lateral.



Golden Points to Remember

1. As per the WHO data (2015), Coronary artery disease causes most deaths worldwide (8.8 million deaths) followed by Stroke (6.2 million deaths).
2. High homocysteine level (**>12–15 mmol/L**) damages the inner lining of the blood vessel and causes atherosclerosis.
3. Orthostatic hypotension is defined as a decrease in **systolic blood pressure** of 20 mm Hg or a decrease in **diastolic blood pressure** of 10 mm Hg within 3 minutes of standing when compared with blood pressure from the sitting or supine position.
4. Outpouching or dilation of arterial wall is called **aneurysm**.
5. Pulmonary hypertension increases the workload of the right ventricle and causes right ventricular hypertrophy also known as **cor pulmonale**.
6. **Dyspnea** on exertion and **fatigue** are classic symptoms of **pulmonary hypertension**.
7. World Health Organization recommends a reduction to <2 g/day sodium (5 g/day salt) in adults to reduce the risk of hypertension and cardiovascular disease.
8. Postural hypotension (orthostatic hypotension) refers to fall in SBP over 20 mm Hg or DBP over 10 mm Hg when standing up or lying down after sitting (i.e., when there is a change in posture).
9. The artificial cardiac pacemaker is an electronic device used to pace the heart when the normal conduction pathway is damaged or diseased.
10. Common causes of infective endocarditis are ***Staphylococcus aureus*** and ***Streptococcus viridans*****, and bacterial**.
11. **Duke's criteria** are used for diagnosis of pericarditis.
12. **Roth's spots** are hemorrhagic retinal lesions revealed by fundoscopic examination in infective endocarditis.
13. Inadequately treated streptococcal throat might cause **Rheumatic fever**.
14. The most common causative agent of rheumatic fever is ***Streptococcus pyogenes***.
15. According to **Jones (1944) criteria,** the presence of **two major criteria** or **one major and two minor criteria** plus evidence of group A streptococcal infection indicates a high probability of acute rheumatic fever.
16. Classic symptom of peripheral arterial disease is intermittent claudication pain that occurs after considerable level of exercise and relieved by rest.
17. Clinical manifestation of acute arterial ischemia includes the **six Ps: P**ain, **P**ulselessness, **P**aresthesia, **P**aralysis, **P**allor and **P**oikilothermia.
18. **Boot-shaped heart** is seen in Fallot's tetralogy disease.
19. **Pear-shaped/flask-shaped** heart is seen in pericardial effusion.

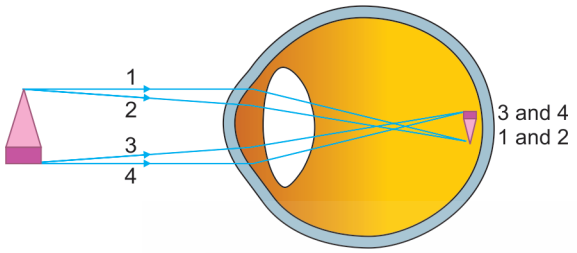


Contd...

Image-Based Questions (Including All Topics)

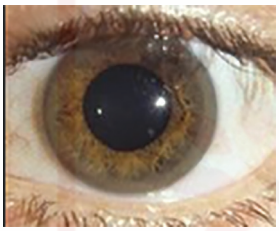
1. Identify the refractive error.

(Refer explanation at the end)



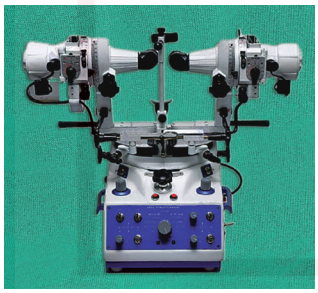
a. Myopia
b. Hypermetropia
c. Presbyopia
d. Astigmatism

2. Identify the pathology depicted in the given image.



a. Corneal ulcer
b. Aniridia
c. Circumcorneal congestion
d. Kayser-Fleischer ring

3. Identify the instrument depicted in the image.



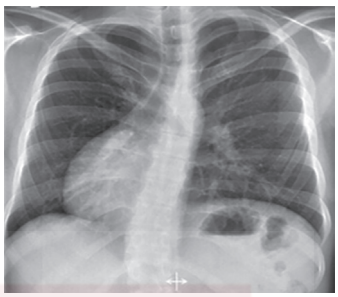
a. Tonometer
b. Perimeter
c. Operating microscope
d. Synoptophore

4. Identify the instrument given in the image.



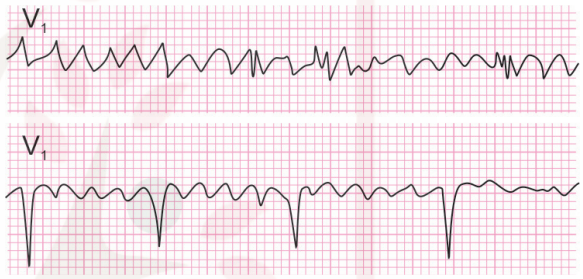
a. Tonometer
b. Pachymeter
c. Keratometer
d. Ophthalmometer

5. The following CXR shows:



a. Dextrocardia
b. Pneumothorax
c. Pneumomediastinum
d. Pulmonary hamartoma

6. ECG given below is of:



a. Atrial fibrillation
b. Atrial flutter
c. Sinus tachycardia
d. PSVT

7. Radio image shows technique of:



a. Barium meal follow through
b. Enteroclysis
c. Barium enema
d. Fluroscopy

8. A patient of ESRD is being performed hemodialysis. Central dialysis catheter is placed at which site?



a. Right internal jugular vein
b. Left internal jugular vein
c. Right subclavian vein
d. Right subclavian artery



Ans.

1. a
2. d
3. d
4. a
5. a
6. a
7. a
8. a

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

[*Courtesy*: PHOTON-20® 3th ed. by Vivek Jain, CBS Publishers and Distributors Pvt Ltd]

"Man needs difficulties; they are necessary for health."
—Carl Jung



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

CARDIOVASCULAR SYSTEM

ANATOMY OF HEART

1. Specialized cardiac muscles are present in layer of the heart.
a. Epicardium b. Myocardium
c. Endocardium d. Pericardium

2. Posterior surface of heart is formed by:
a. RA b. LA
c. LV d. RV

Explanation: Posterior surface of the heart and base of the heart is formed by left atrium.

3. Coronary sinus opens into:
a. Inferior vena cava b. Right atrium
c. Left atrium d. Great cardiac vein

4. What is the normal amount of pericardial fluid?
a. 5–10 ml b. 20–50 ml
c. 50–100 ml d. 100–200 ml

5. The heart valves are lined by ..... layer of the heart.
a. Epicardium b. Myocardium
c. Endocardium d. Pericardium

6. Valve between left atrium and left ventricle is:
a. Bicuspid valve b. Tricuspid valve
c. Tetracuspid valve d. Monocuspid valve

Explanation:
- Valve between left atrium and left ventricle is bicuspid valve which is also known as mitral valve.
- Valve between right atrium and right ventricle is tricuspid valve.
- Valve located between pulmonary artery and right ventricle is semilunar valve.
- Valve located between aorta and left ventricle is also known as semi-lunar valve.

7. Valve responsible for murmurs which auscultates at the second left intercostal space along the left sternal border is:
a. Aortic b. Bicuspid
c. Pulmonic d. Tricuspid

8. The closure of the aortic valve in the arterial waveform is denoted by:
a. Anaerobic notch b. Dicrotic notch
c. Systolic notch d. End diastolic point

9. The arteries that supply the heart muscles are branches of the:
a. Abdominal aorta b. Thoracic aorta
c. Aortic arch d. Ascending aorta

10. "Potential anastomosis" seen in:
a. Labial branch of facial artery
b. Intercostal artery
c. Coronary artery
d. Arterial arcades of mesentery

11. Identify the artery that carries deoxygenated blood
a. Umbilical artery b. Pulmonary artery
c. Both a and b d. Carotid artery

12. Blood supply to the heart is maintained by:
a. Pulmonary b. Coronary
c. Aorta d. Myocardial

13. Posterior communicating artery is branch of:
a. Internal carotid artery b. External carotid artery
c. Middle cerebral artery d. Posterior cerebral artery

14. Right coronary artery supplies all; except:
a. Apex of heart b. Intraventricular septum
c. Inter atrial septum d. SA node

15. Pacemaker of heart is: *(JIPMER 2012)*
a. AV node b. SA node
c. Purkinje fibers d. Parasympathetic system

Explanation: Pacemaker of the heart is SA node. It is located in the wall of the right atrium.

16. Slowest conduction is in:
a. SA node b. Purkinje fibers
c. AV node d. Bundle of His

17. Distention and recoil of blood vessel during systole and diastole is achieved through the ..... property of blood vessel.
a. Peripheral vascular resistance
b. Elasticity
c. Diameter
d. Smooth muscle contraction

18. Vasoconstriction leading to increased blood pressure is triggered by the following situation:
a. Stimulation of the parasympathetic nerve supply.
b. Stimulation of the cardioinhibitory center in the medulla.
c. Increased levels of angiotensin II in the blood.
d. Increased level of carbon dioxide in the blood.

19. Baroreceptors help in:
a. Stimulating respiration
b. Stimulating sweating
c. Maintaining BP
d. Stimulating thirst

20. Arterial supply to SA node is by:
a. Left anterior descending coronary artery
b. Posterior interventricular (descending) artery
c. Left coronary artery
d. Right coronary artery



Ans.

1. b
2. b
3. b
4. b
5. c
6. a
7. c
8. b
9. d
10. c
11. c
12. b
13. a
14. a
15. b
16. b
17. b
18. c
19. c
20. d

Nursing Knowledge Hub
An Initiative by CBS Nursing Notes

21. Normal cardiac Output in a healthy adult is:
a. 1 L/ min
b. 3 L/min
c. 5 L/min
d. 7 L/min

22. Time duration of cardiac cycle is:
a. 0.5 sec
b. 0.8 sec
c. 1 sec
d. 2 sec

23. The blood circulation that is responsible for gas exchange between alveoli and capillaries resulting in the oxygenation of blood is the:
a. Coronary circulation
b. Hepatic circulation
c. Pulmonary circulation
d. Systemic circulation

24. Blood from the right side of the heart flows into the:
a. Superior vena cava
b. Pulmonary trunk (artery)
c. Pulmonary veins
d. Aorta

25. The amount of blood that is ejected from the left ventricle in one contraction is called the:
a. Cardiac output
b. Stroke volume
c. Preload
d. Afterload

26. Cardiac Output can be calculated using:
a. CO = tidal volume X-heart rate
b. CO = tidal volume X-peripheral vascular resistance
c. CO = peripheral vascular resistance X-heart rate
d. CO = stroke volume X-heart rate

27. The venous blood from organs of the digestive system such as the stomach and intestines will drain into the:
a. Portal vein
b. Mesenteric veins
c. Internal iliac veins
d. Lumbar veins

28. Oxygen is carried by blood after it is combining with:
a. Albumin
b. WBC
c. Hemoglobin
d. Platelet

29. What is preload?
a. Pressure in the ventricle at the end of systole
b. Pressure in the ventricle at the end of diastole
c. Pressure in the aorta at the end of systole
d. Pressure in the atria at the end of systole

30. The formula for ejection fraction is:
a. $\mathbf{EF} = \frac{\text{Stroke Volume}}{\text{End Diastolic Volume}}$
b. $EF = \frac{\text{Stroke Volume}}{CO \times \text{Heart Rate}}$
c. $EF = \frac{\text{Diastolic Volume}}{CO \times \text{Heart Rate}}$
d. $EF = \frac{\text{End systolic Volume}}{\text{Stroke Volume}}$

31. Most common sign associated with decreased cardiac output is:
a. Shortness of breath
b. Peripheral edema
c. Cardiac murmurs
d. Arthritis

32. When listening to heart sound, you can best hear sound, at the:
a. Base of the heart
b. Apex of heart
c. Aortic area
d. IInd ICS to the left of sternum

33. Ventricular gallop:
a. S1
b. S2
c. S3
d. S4

34. S2 heart sound corresponds to:
a. Closure of the aortic and pulmonic valve
b. Closure of the aortic valve
c. Closure of the mitral and tricuspid valve
d. Closure of the mitral valve

Explanation

Normal heart sounds:
- S1 (First Heart sound-LUBB) produced by closure of AV valves (Tricuspid and mitral)
- S2 (Second Heart sound-DUBB) produced by closure of Semilunar valves (aortic and pulmonic valve)

Abnormal heart sounds:
- **S3** (Third heart sound) Also known as **ventricular gallop.** It corresponds to early ventricular filling (passive filling) when mitral valve opens. It is often associated with **Heart failure.**
- **S4** (Fourth heart sound) Also known as Atrial gallop.

35. Connection between artery and vein is known as:
a. Capillaries
b. Arterioles
c. Venules
d. Lymph

36. The network between the arteries that supplying to a particular area is known as:
a. Collateral arteries
b. Anastomoses
c. Capillary networks
d. Vena-caval junction

37. Identify the blood vessel which carry blood into right atrium
a. Inferior vena cava
b. Superior vena cava
c. Pulmonary vein
d. Both a and b

38. Identify the blood vessel which carries blood into left atrium
a. Inferior vena cava
b. Superior vena cava
c. Pulmonary vein
d. Both a and b

39. Posterior cerebral artery is a branch of which of these?
a. Vertebral artery
b. Basilar artery
c. Posterior cerebral artery
d. Posterior choroidal artery

40. Terminal branch of Internal Carotid Artery:
a. Anterior choroidal artery
b. Anterior cerebral artery
c. Ophthalmic artery
d. Inferior hypophyseal artery

41. Smallest vein is:
a. Venules
b. Capillaries
c. Lymph
d. Arterioles

Explanation: Smallest vein is venules. Smallest artery is arterioles.



Ans.

21. c
22. b
23. c
24. b
25. b
26. d
27. a
28. c
29. b
30. a
31. a
32. b
33. c
34. a
35. a
36. a
37. d
38. c
39. b
40. b
41. a

Nursing Knowledge Tree
An Initiative by CBS Nursing

"One day in perfect health is much."
—Arabic



CHAPTER 7

PHARMACOLOGY

SYNOPSIS

KEY TERMINOLOGIES

- **Pharmacology:** It is derived from Greek words *pharmacon* which means drugs and *logos* which means study or knowledge. It is the scientific study of the origin, nature, chemistry, effects and uses of drugs.
- **Drug/medications:** Any chemical substance which affects living systems. French word 'drogue' means 'dry herb.' – used for treatment of disease, for the prevention of illness of pathologic states and for diagnosing disease condition.
- **Chemotherapy: Therapeutic treatment of various local or systemic infections or malignancies by using various drugs or chemicals is called chemotherapy.**
- **Pharmacognosy:** The branch of pharmacology dealing with the economic, biological and chemical aspects of natural drugs and their constituents. Study of the sources of drugs and the physical characteristics of crude or unrefined drugs, e.g., plants.
- **Pharmacodynamics** is the effect that drugs have on the body (what drug does to the body).
- **Pharmacokinetics** is the study of the way in which drugs move through the body during **absorption, distribution, metabolism** and **excretion** (what body does to the drug).
- **Absorption**
  - Physiological considerations in absorption: **Blood flow**, **total surface area**, **time of arrival of the drug** and **time of drug at absorption site**.
  - Other considerations for absorption: **Solubility**, **chemical stability** and solubility of drug in **lipids**.
- **Distribution**
  - Drugs are distributed, into major body fluids (e.g., plasma).
  - Drug distribution is affected by the extent that the drug binds to plasma proteins and barriers.
- **Biotransformation**
  - It is a process of metabolizing drugs in the body.
  - Occurs mainly in liver.
  - Prodrugs are only activated by the hepatic metabolism, **e.g., Levodopa.**
- **Excretion:** Excretion includes renal (by active glomerular filtration and fecal elimination).
- The time of the onset of drug action is determined by the time taken by the drug to reach to the site of action. It is largely controlled by:
  - Route of administration
  - Rate of absorption
  - Manner of distribution.
- **Bioavailability:** It is a measure of fraction of administered drug that reaches the systemic circulation in the unchanged form.
- **First Pass Metabolism:** It is the metabolism of a drug at the site of absorption during its passage from the site of absorption into the systemic circulation. All orally administered drugs undergo first pass metabolism. Drugs administered through sublingual, transdermal and parenteral routes do not undergo first pass metabolism (bypasses portal circulation)
- **Agonist:** These are the drugs which bind to the receptor and produce same biological effect as that of the receptor.
- **Antagonist:** These are the drugs which oppose the action of the receptor or an agonist.
- **Antidote:** A drug which can counteract a form of poisoning, e.g., Atropine is an antidote to organophosphorus poisoning.
- **Lethal Dose 50 (LD50):** Standard measure of the toxicity of a drug/substance that will kill half of the sample population of a specific test animal in a specific period.
- **Pharmacovigilance:** The science and activities relating to the detection, assessment, understanding and prevention of adverse effects, or any other drug related problem.
- **Teratogenicity:** It is the ability of a drug to produce harmful effects of drugs on fetus when administered during pregnancy.
- **Anaphylaxis:** It is a severe allergic reaction (hypersensitive reaction), which occurs due to ingestion of drugs or any foreign protein material.
- **Antidote:** A drug or chemical substance which counteracts the harmful effects of other drug or chemical.
- **Contraindication:** Any condition or factor, which prevents or withholds the use of a medicine or drug.
- **Emulsion:** It is the mixture of two or more liquids that are normally immiscible (e.g., Mixture of water and oil). Milk is a natural emulsion.
- **Half-life:** It is the period of time required for the concentration of drug in body (usually plasma) to be reduced to one-half. It is one of the major factors that influence the duration of action of a drug.

Nursing Knowledge
An initiative by CBS Nursing Division

- **Iatrogenic:** Refers to condition or illness, occurs due to the action of physician or therapy. It is the result of diagnostic and/or therapeutic procedures undertaken on a patient.
- **Idiosyncrasy:** It is genetically determined abnormal reactivity to a drug.
- **Loading dose:** Administering a drug at a dose higher than the routinely used dose is called loading dose.
- **Synergism:** Drugs are said to be synergistic when the action of one drug is potentiated or increased by the other. It can be additive or superadditive.
  - **Additive:** Effect of drugs A + B = Effect of drug A + Effect of Drug B, e.g., 1 + 1 = 2
  - **Superadditive:** Effect of drugs A + B > Effect of drug A + Effect of Drug B, e.g., 1 + 1 = 10
- **Antagonism:** Drugs are said to be antagonistic when one drug decreases or abolishes the action of another drug.
- **Pharmacopoeia:** It is the official publication which contains all details about established drugs, being in a particular country, e.g., Indian Pharmacopoeia (IP), British Pharmacopoeia (BP), United States Pharmacopoeia (USP).

Commonly used Abbreviations in Prescriptions

- **R_x:** The symbol R is an abbreviation for the Latin word RECIPE, which means take thou or you take. The line on the foot of R is set to designate an invocation to Jupiter, the God of Knowledge, learning and healing.
- **Tab:** Tablet
- **Cap:** Capsule
- **Inj:** Injection
- **IM:** Intramuscular
- **IV:** Intravenous
- **SC:** Subcutaneous
- **I/D:** Intradermal
- **OD:** Once in a day
- **BD/BID:** Bis in die (Twice a day)
- **TDS:** Ter in die sumendum (To be taken thrice a day)
- **TID:** Ter in die (Three times a day)
- **QID:** Quarter in die (Four times a day)
- **HS:** Hora somni (At bedtime)
- **Stat:** Stain (Immediately)
- **Rept:** Repetatur (Repeat)
- **Non rept:** Non repetatur (Nonrepeat)
- **AC:** Ante cibum (Before meals)
- **PC:** Post cibum (After meals)
- **NPO:** Nil per orally (Nothing to taken by mouth)
- **BBF:** Before breakfast
- **AD:** After dinner
- **SOS:** As and when required

CONVERSION EQUIVALENCE OF WEIGHT

TABLE **1:** **Conversion equivalence of weight**

Unit	Symbol	Equivalent
1 kilogram	kg	1,000 grams (g)
1 kilogram	Kg	2.2 pounds (lb)
1 gram	g	1,000 milligrams (mg)
1 milligram	mg	1,000 micrograms (mg)
1 microgram	mg	1,000 nanograms (ng)
1 ounce	oz	28.35 g
1 pound	Lb	454 g
1 gram	g	15.432 grains

Nursing Knowledge Tree
An initiative by CBS Nursing Division

CONVERSION EQUIVALENCE OF VOLUME

TABLE **2:** **Conversion equivalence of volume**

Unit	Equivalent
1 drop (gtt)	0.05 mL
1 mL	20 drops
1 teaspoon full	5 mL
1 Tablespoon full	15 mL
1 mL	16.23 minims
1 minim	0.06 mL
1 pint	473 mL
1 quart	949 mL
1 gallon	3745 mL



Image-Based Questions

1. The device connected to the metered-dose inhaler (MDI) in the picture is known as: ***(Refer explanation at the end)***



a. Connector
b. Facilitator
c. Spacer
d. Inhaler

2. The cylinder given in the picture is used to store: ***(Refer explanation at the end)***



a. Air
b. Oxygen
c. Entonox
d. Nitrous oxide

3. DOC for Poisoning due to Substance produced by Plant shown in Photograph is: ***[Recent Question 2013]***



a. Pyridoxine
b. N-acetylcysteine
c. Prazosin
d. Naloxone



Ans.

1. c
2. d
3. d

Explanations of Image-Based Questions

1. Ans. (c) Spacer

(Ref: Goodman Gilman 12th E/P1035)

- Spacer is a device that connects to the MDI and patient inhales drug from the spacer.
- This causes lesser deposition of steroid in oropharyngeal cavity and hence, lesser oropharyngeal candidiasis and systemic side-effects are seen.
- This device makes it easier to use MDI in children.

2. Ans. (d) Nitrous oxide (N_2O)

- Blue color cylinders are used to store nitrous oxide.

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

[*Courtesy*: PHOTON-20® 3th ed. by Vivek Jain, CBS Publishers and Distributors Pvt Ltd]

"A good laugh and a long sleep are the best cures in the doctor's book."
—Irish Proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

KEY TERMINOLOGIES IN PHARMACOLOGY

1. Unwanted but unavoidable pharmacodynamic effects of a drug at therapeutic dose is known as:
a. Hypersensitivity b. Toxic effects
c. Side effects d. Idiosyncrasy

Explanation: Side effects are undesired but often unavoidable pharmacodynamic effects that occur at therapeutic dose. Idiosyncrasy refers to individual's peculiar sensitivity to a drug. Drug intolerance is defined as a lower threshold to the normal pharmacologic action of a drug. Hypersensitivity is excessively or abnormally sensitive

2. A drug can: *(ESIC Chennai May 2012)*
a. Diagnose disease b. Cure disease
c. Prevent disease d. All of these

3. Pharmacodynamic includes:
a. Drug elimination b. Drug excretion
c. Drug absorption d. Mechanism of action

4. Loading dose of a drug is given:
a. To achieve high concentration in short time
b. For rapid onset of action
c. To avoid complication
d. To minimize side effects

5. The maximum effect of a drug is defined by:
a. Therapeutic index b. Potency
c. Efficacy d. Adversity

6. Drugs used for rare disease are known as:
a. Orphan drugs b. Rare drugs
c. Over the counter drugs d. Emergency drugs

7. Which of the following is true of placebo?
a. Placebo is a dummy medication
b. Placebo is the inert material added to drug for making
c. Placebo is an additive added with the drug during manufacturing
d. All patients respond to placebo

8. The substances derived from living organisms that are used to kill or prevent the growth of bacteria is known as:
a. Antibiotics b. Antidotes
c. Antihistamines d. Antipyretics

9. Which of the following is an example of urinary antiseptic?
a. Cresol b. Furosemide
c. Nitrofurantoin d. Hypochlorite

10. Drug used to treat itching is known as:
a. Analgesic b. Anti-infective
c. Antispasmodic d. Antipruritic

11. Substances used to counteract the effects of poison are called:
a. Antibiotics b. Anticholinergics
c. Antiemetics d. Antidotes

12. The ability of the drug to cause foetal damage is called:
a. Amniotic b. Fetotoxic
c. Ototoxic d. Teratogenicity

13. Cholagogues are drugs used to:
a. Increase the amount of secretion of bile
b. Increases peristalsis
c. Treat flatulence on tissues and arrest secretions
d. Inhibit peristalsis

14. Astringents are drugs used:
a. As cosmetics
b. Reduce bleeding from minor abrasions
c. To arrest secretions
d. All of the above

DOSAGE FORMS

15. Glucose is added in ORS to:
a. Improve taste
b. Decrease bacterial colonization of GIT
c. Increase the stability
d. Increase the absorption of sodium

16. Age-appropriate dosage form for a 7-year-old boy to administer antibiotic as the treatment for his ear infection is:
a. Tablet
b. Capsule
c. I.M Injection with 20 g needle
d. Oral suspension

17. Which of the following dosage form does not dissolve in the stomach?
a. Hard capsule b. Soft capsule
c. Enteric coated tablet d. Film coated tablet

Explanation: An enteric coating is a polymer barrier applied to oral medication that prevents its dissolution or disintegration in the gastric environment. Film coatings are very thin layers of a safe ingredient placed around the tablet to again protect the tongue from the flavor of the contents and protect the contents from moisture and light. Due to its large size, sugar coatings are largely replaced by film coating to mask the unpleasant odor/taste of the drug.

18. Which of the following dosage form is best suitable in a medical emergency where a centrally acting rapid action is required?
a. S.C. injection b. Transdermal patch
c. I.V. Injection d. I.M. Injection

Explanation: IV route of administration is the fastest route and bypasses absorption barriers and first-pass metabolism. It is used when a rapid effect is required in continuous administration and in large volumes.



Ans.

1. c
2. d
3. d
4. a
5. c
6. a
7. a
8. a
9. c
10. d
11. d
12. d
13. a
14. d
15. d
16. d
17. c
18. c

19. A liquid containing a drug with syrup, glycerine, or alcohol added to mask its unpleasant taste is known as:

a. Lotion b. Syrup
c. Elixir d. Suspension

PRODRUGS

20. A medication which is metabolized and converted into a pharmacologically active drug after administration is known as:

a. Active drug b. Prodrug
c. Premetabolite d. Placebo

21. All of the following are prodrugs; EXCEPT:

a. Allopurinol b. Levodopa
c. Oxazepam d. Prednisone

Explanation: Some of the commonly used prodrugs and its active form of drug (metabolite) is given below:

Prodrug	Active drug
Allopurinol	Oxypurinol
Levodopa	Dopamine
Prednisone	Prednisolone
Diazepam	Oxazepam
Aspirin	Salicylic acid
Enalapril	Enalaprilat
Ramipril	Ramiprilat
Valacyclovir	Acyclovir
Simvastatin	Beta Hydroxy Acid derivative
Talampicillin	Ampicillin
Protonsil	Sulfanilamide
Cortisone	Hydrocortisone
Azidothymidine	Zidovudine triphosphate
Dipivefrin	Adrenaline

22. Which of the following is the earliest discovered prodrug?

a. Enalapril b. Prontosil
c. Diazepam d. Levodopa

23. Which of the following statement regarding prodrug is incorrect?

a. Prodrug is chemically drug precursor
b. Pro-drugs comprising of 2 pharmacologically active agents are known as 'mutual prodrug'
c. A soft drug is one which is resistant to biotransformation and therefore has a long half-life
d. Aspirin is the prodrug of salicylic acid used to minimize gastric irritation

Explanation: Option c is the definition of hard drug. All other given options are in relation to prodrug.

24. Which one of the following antiplatelets is a prodrug?

a. Aspirin b. Dipyridamole
c. Ticlopidine d. Abciximab

THERAPEUTIC INDEX

25. Therapeutic serum level of phenytoin in the treatment of seizure is:

a. Below 5 mcg/mL b. 10-20 mcg/mL
c. 25-35 mcg/mL d. 40-50 mcg/mL

Explanation: In the treatment of seizure, serum therapeutic level of phenytoin must be maintained around between 10 and 20 mcg/mL for effectiveness.

ROUTES OF ADMINISTRATION

26. Which of the following route of drug administration is most likely to lead to the first-pass effect?

a. Sublingual b. Oral
c. Intravenous d. Intramuscular

Explanation: Orally administered drugs are absorbed in the intestine and enter portal circulation. This leads to first-pass effect in the liver.

27. Which of the following factor may affect the drug absorption rate from IM injection site?

a. Muscle tone
b. Muscle strength
c. Amount of body fat at injection site
d. Blood flow to the injection site

Explanation: Amount of blood flow to the site of injection determines the rate of absorption of drug into the circulation. Amount of body fat may determine the size of the needle to be used. Muscle tone and strength do not have any effect on drug absorption.

28. Which of the following site must be avoided while giving I. M. injection to a 2-year-old child?

a. Deltoid muscle
b. Dorsogluteal muscle
c. Ventrogluteal muscle
d. Vastus lateralis muscle

Explanation: Dorsogluteal muscle is not sufficiently developed to be safe injection site for infants and small children. Other mentioned sites are safe for I.M injection in a 2-year-old child.

29. All are local routes of drug administration; EXCEPT:

a. Topical b. Intra-articular
c. Oral d. Intra-vaginal

30. Which of the following is the most preferred route of administration in an unconscious patient?

a. Inhalation route b. Enteral route
c. Oral route d. Parenteral route

31. Injection of a drug directly into joints is termed as:

a. Intra-articular b. Intra-arterial
c. Intraossicular d. Intramedullary

32. Which one of the following drugs is administered sublingually for the management of angina pectoris? *(DSSSB 2013)*

a. Aspirin b. Nitroglycerine
c. Atenolol d. Warfarin



Ans.

19. c
20. b
21. c
22. b
23. c
24. c
25. b
26. b
27. d
28. b
29. c
30. d
31. a
32. b

"One day in perfect health is much."
—Arabic



CHAPTER 8

COMMUNITY HEALTH NURSING

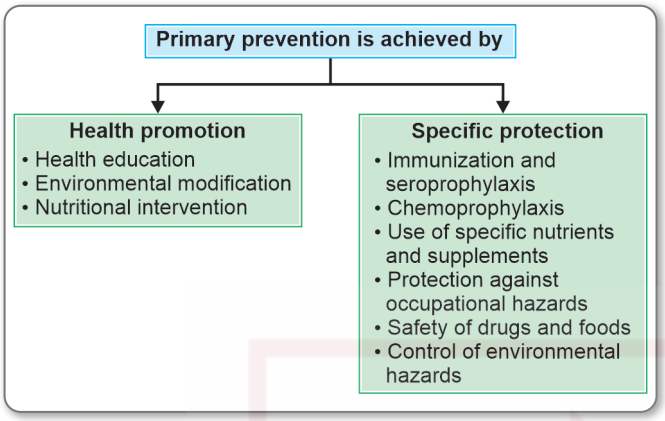
SYNOPSIS

LEVELS OF PREVENTION

TABLE **1:** **Levels of prevention and mode of intervention**

Levels of prevention	Definition and concept	Mode of intervention	Stage of the disease	Examples
Primordial prevention (target population is healthy individuals)	Prevention of development of risk factors. Consists of actions and measures that inhibit the emergence of risk factors	• Individual and Mass Education • Lifestyle adaptation from childhood	Lifetime	Increasing taxes on cigarettes Ban on liquor advertisement
Primary prevention ↓ Before the disease occurrence (target population is healthy individuals)	Action taken prior to the onset of disease • Focus on positive health • Promote well-being and quality of life	**Health promotion** and **specific protection.** **Approaches:** • Population strategy • High risk strategy	Pre-pathogenesis phase	Vaccination Immunization Sanitation Water purification Quarantine
Secondary prevention ↓ During disease process (target is healthy-appearing individuals with subclinical forms of the disease)	• Actions halt the disease progress and prevent complications	Early diagnosis and treatment • Screening test • Case findings	Pathogenesis phase (early)	Mammography Pap smear Breast self-examination
Tertiary prevention ↓ (after the disease process) (target population is symptomatic patients)	• Used when the disease process has advanced beyond its early stages • To limit impairments and disabilities and to promote the patient's adjustment to irremediable conditions	• Disability limitation • Rehabilitation	Late Pathogenesis phase	Rehabilitation Diabetic foot care Palliative care

Nursing Knowledge Tree



HEALTH CARE DELIVERY SYSTEM IN INDIA

Primary Health Care in India

- Following an international conference at **Alma-Ata (1978)**, a new approach to health care came into action and this was called primary health care.
- In **1977**, Government of India developed rural health scheme based upon the recommendation of **Shrivastav committee**.
- It is a **three-tier system** based on the principle of placing people's health in people's hand.

Principles of Primary Health Care

- Equitable distribution
- Community participation
- Intersectoral coordination
- Appropriate technology
- Focus on prevention

Village Level

- One of the main features of primary health care is equitable distribution and universal coverage.
- To achieve the aim at village level following schemes are functional:
  - ASHA scheme
  - ICDS scheme
  - Training of local dais

ASHA (Accredited Social Health Activist)

- ASHA must be the **resident of the village**
- Usually, **ASHA serves a population of 1000**. In tribal and hilly areas, ASHA may be one per habitation.

List of drugs being provided in asha drug kit

1. Disposable Delivery Kit for Clean deliveries at home
2. Tab. Iron
3. Tab. Folic Acid
4. Tab Punarvadu Mandur (ISM Preparation of Iron)
5. Syrup Iron
6. ORS Packets
7. Tab. Paracetamol
8. Tab. Dicyclomine
9. Povidone Iodine Ointment 5% tube
10. GV Paint
11. Cotton Absorbent roll of 500 gms
12. Bandages, 4 cm × 4 meters
13. Tab. Chloroquine
14. Condoms
15. Oral Contraceptive Pills (in cycles)
16. Emergency Contraceptive Pills
17. Thermometers

Contd...



Sub-Center

- First contact point between primary health care system and community.
- Plain area - one sub-center for 5000 population
- Hilly, tribal or desert areas - one sub-center for 3000 population
- **Type A sub-center** provides basic services
- **Type B sub-center** provides MCH services + Basic services.
- **Type B sub-centers** are also known as MCH subcenters

Drugs and Equipment Kit at Sub-Center Level

- Drug kit A for ANM
- Drug kit B
- Kit C contains sub-center equipment and midwifery kit

Primary Health Center

- First contact point between village community and the medical officer is Primary Health Center.
- One PHC for population of 3000 in rural plain areas and one PHC for population of 2000 in hilly, backward and tribal areas.
- From the delivery case load point of view, PHCs are classified as A and B type.
- **Type A PHC** means less than 20 deliveries per month
- **Type B PHC** means more than 20 deliveries per month

Staffing Pattern

Staff	Type A	Type B
Medical officer (MBBS)	1	1
Accountant cum data entry operator	1	1
Pharmacist	1	1
Nurse midwife	3	4
Health care worker female	1	1
Health assistant male	1	1
Health assistant female/lady health visitor	1	1
Lab technician	1	1
Multi skilled group D worker	1	1
Sanitary worker cum watchman	1	1

Drug and Equipment Kit at PHC

- Equipment Kit D

  Kit-D (PHC equipment kit)
  - Normal delivery kit
  - Equipment for assisted vacuum delivery

Nursing Knowledge Tree
An initiative by CBS Publishers & Distributors

Go Digital!
Download the app
Nursing Next Live
The Next Level of Nursing Education
"If you are not listening, you are not learning."
Lyndon Baines Johnson
listen and recall
Golden Points in Podcasts
with AMLI (The TH Educator)
Under Plan MSc > Golden Points

Golden Points to Remember

1. The World Health Day is celebrated on **April 7th.**
2. World Tuberculosis Day is celebrated on **March 24th**.
3. World AIDS Day is celebrated on **1st December**.
4. Prevention of risk factors refer to primordial prevention. For example, Lifestyle modification.
5. **Immunization and fortification of food** with specific nutrients are an example of **primary prevention.**
6. Wearing seat belts, safety helmets and other safety equipment are the examples of **primary health promotion behavior.**
7. Early diagnosis (screening) and primary treatment (basic treatment) of the disease are known as **secondary prevention.**
8. Medical therapy (hospital care), surgical treatment and rehabilitation are the examples of **tertiary level prevention.**
9. The ideal **weight** of an adult person is calculated on the basis of **height.**
10. The study of distribution and determinants of the disease is called **epidemiology**.
11. The WHO initiative 'Right to Sight' is named as **Vision 2020.** It is a global initiative for the elimination of avoidable blindness.
12. India is currently in late expanding stage (third stage) of demographic cycle. In this stage, birth rate begins to decline and death rate further decreases (from 2nd stage).
13. **Sex ratio** is defined as the number of female individuals for every 1000 male individuals.
14. **General fertility rate** refers to number of live births per 1000 females in reproductive age group.
15. **Mass drug administration** is given to control filaria and malaria in many countries but in India, it is done in case of lymphatic filaria only.
16. The content of Drug Kit A provided at Subcenter includes ORS, tablet iron and folic acid, vitamin A solution and tablet cotrimoxazole.
17. The population covered by the primary health center is 30,000 in plain areas and 20,000 in tribal area.
18. **Bhore Committee** (1946) is known as **"Health Survey and Development Committee".**
19. **Mudaliar Committee** (1962) is known as **"Health Survey and Planning Committee".**
20. One **basic health worker** for 10,000 population was recommended by **Chadha Committee (1963).**
21. **Kartar Singh Committee (1973)** recommended that ANMs were to be converted to MPW (F).
22. The **Rural Health Scheme** was based on the recommendation of **Srivastava Committee**.
23. MPWs (multipurpose worker) team includes one male health worker and one female health worker which cover 5,000 population in rural areas.
24. The newborn birth is to be registered in India within 21 days of birth.
25. **UNICEF (United Nation International Emergency fund)** was established in 1946.
26. **Telemedicine hub** refers to the primary clinical site from where the health provider renders health services to the remote places.
27. Antiviral agents used for prevention and treatment of **swine flu** are Oseltamivir (Tamiflu) and Zanamivir (Relenza).
28. A **characteristic** feature of the rash in **chickenpox** is its **pleomorphism** (all stages of rash may be seen simultaneously).
29. India was free from smallpox in April 1977 but it was officially declared in December 1979.
30. Smallpox was officially declared eradicated by the World Health Organization (WHO) on 8th May, 1980.
31. **BCG, Hepatitis B, OPV** vaccines are recommended at birth according to National Immunization Schedule.
32. The system of storing and transporting vaccines is termed as Cold chain.
33. The vaccination can be used if the center square is white in the Vaccination Vial Monitor (VVM)
34. **Oral Polio Vaccine** (OPV) is a live vaccine (Sabin) and **Inactivated Polio Vaccine** (IPV) is a killed vaccine (Salk).
35. The diluent used for reconstitution of BCG vaccine is normal saline.
36. **Pulse Polio Immunization** was introduced in 1995.
37. **Hepatitis A** and **Hepatitis E** viruses are mainly transmitted through feco-oral route.
38. **Hepatitis B** and **C** are transmitted through blood-to-blood contact.
39. **Hepatitis D** only occurs in people who are infected with the **hepatitis B** virus because HDV require help of HBV to replicate.
40. The time interval between the invasion by an infectious agent and the appearance of first sign of disease is called **incubation period.**
41. **DOTS (Directly Observed Treatment for Short course)** is a strategy used by World Health Organization (WHO) to decrease the number of tuberculosis (TB) patients.

Contd...

Image-Based Questions

1. The logo shown in the picture belongs to:



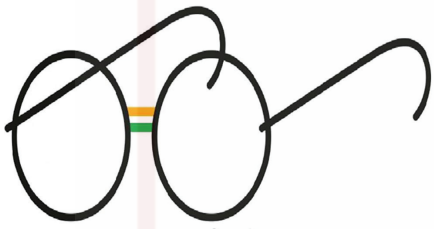
a. Ayushman Bharat
b. National Green Tribunal
c. Jan Dhan Yojana
d. Atal Pension Yojana

2. The logo shown in the picture indicates:



a. Ayushman Bharat
b. NRHM
c. Jan Dhan Yojana
d. Atal Pension Yojana

3. The logo image shown in the picture is associated with:



a. Sansad Adarsh Gram Yojana
b. Swachh Bharat Mission
c. Shramew Jayate Yojana
d. Atal Pension Yojana

4. The logo shown in the image is associated with _____ scheme:



a. Skill India Mission
b. Hridaya Plan
c. Beti Bachao Beti Padhao
d. Shramew Jayate Yojana

5. Identify vector shown in photograph:



a. Culex
b. Mansonia
c. Sandfly
d. House fly

6. Identify the parasitic insect:



a. Scabies mite
b. Bed bug
c. Mansonia
d. Head lice (Pediculus capitis)

7. Parasitic insect shown in the picture is:



a. Scabies mite
b. Head lice
c. Pubic lice
d. Pediculus humanus capitis

8. Identify the organization depicted by symbol:



a. National Planning Commission (NPC)
b. National Disaster Management Authority (NDMA)
c. Unique Identification Authority (UIDAI)
d. ESI Corporation



Ans.

1. a
2. c
3. b
4. c
5. c
6. d
7. c
8. c

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

[*Courtesy*: PHOTON-20® 3th ed. by Vivek Jain, CBS Publishers and Distributors Pvt Ltd]

"Man needs difficulties; they are necessary for health."
—Carl Jung



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

CONCEPTS AND DETERMINANTS OF HEALTH AND WELL-BEING

1. Quality and quantity of an individual's inter-personal ties and extent of involvement with the community is known as: *(AIIMS BPL NO 2018)*

a. Mental dimension of health
b. Physical dimension of health
c. Spiritual dimension of health
d. Social dimension of health

Explanation: Social dimension is related to social well-being that creates integration and adjustment with the individual and community. Mainly it is defined the quality and quantity of an individual's inter-personal ties and extent of involvement with the community.

2. The functions of community are: *(AIIMS Raipur Grade II 2017)*

a. It provides space for socializing and recreation
b. It provides safety and security
c. Socialization and Education for its members
d. Provides opportunity for interaction among members

a. a, b, c b. b, c, d
c. a, c, d d. a, b, c, d

Explanation: The functions of community include socialization, social control, social participation and mutual support.

3. Entomology is the science that studies: *(RRB SSNE 2015)*

a. Behavior of human beings
b. Insects
c. Behavior of ants
d. Formation of rocks

4. Head Quarters of World Health Organization (WHO) is situated at:

a. New York, United States of America
b. London, England
c. Geneva, Switzerland
d. Paris, France

5. The concept of health which emphasizes that health is a 'sound mind in a sound body in a sound family in a sound environment' is: *(AIIMS Bhopal Grade-I 2018)*

a. Ecological concept b. Physical concept
c. Psychological concept d. Holistic concept

Explanation: The health has been described by various scientists according to their concept of viewing the health. The ecologist viewed health as a harmonious equilibrium between man and environment. The physical concept of health describes health as a state of well-functioning of the body and psychological concept describes health as absence of mental illness. The Holistic concept of health is viewed as a multidimensional process involving well-being of the whole person in the context of his environment.

6. The World Health Day is observed on:

a. 7th April b. 4th May
c. 17th August d. 1st December

Explanation: The World Health Organization observes World Health Day on 7th of April every year.

7. Health means absence of disease is the concept of:

a. Biomedical b. Ecology
c. Holistic d. Psychosocial

Explanation: Health means absence of disease is the biomedical concept.

8. Forerunner of modern public health is: *(JIPMER 2012)*

a. Phoebe b. Nightingale
c. Serelette d. Louis Pasteur

INDICATORS OF HEALTH

9. All of the following components are used in Kuppuswamy classification of socioeconomic status; except:

a. Family income b. Education
c. Occupation d. Number of children

Explanation: Component of Kuppuswamy scale includes education, occupation and income. Kuppuswamy classification is used in urban and periurban areas which consider the education of the head of family, occupation of head of the family and per capita monthly income.

10. The process of continuous progressive improvement of the health status of a population is:

a. Block development b. Community development
c. Health development d. Society development

Explanation: Health development is the progressive improvement of health status of a population.

11. Ongoing measurement of performance of a health service refers to:

a. Evaluation b. Monitoring
c. Scrutinization d. Surveillance

Explanation: Ongoing measurement of performance of health services is known as surveillance.



Ans.

1. d
2. d
3. b
4. c
5. d
6. a
7. a
8. d
9. d
10. c
11. d

Nursing Knowledge Tree
An initiative by CBS Nursing Division

12. Human Development Index (HDI) does not include:
a. Mean Years of schooling
b. Life expectancy at birth
c. Real GDP per capita
d. Adult literacy rate

13. Most important health status indicator of a country:
a. Life expectancy at birth
b. Maternal mortality rate
c. Total fertility rate
d. Infant mortality rate

LEVELS OF HEALTH CARE AND HEALTH FOR ALL

14. The principles of primary health care include: *(AIIMS Raipur Grade II 2017)*
a. Equitable distribution
b. Community participation
c. Coverage and accessibility
d. Appropriateness and continuity
a. a, b, c b. b, c, d
c. a, c, d c. a, b, c, d

Explanation: The principles of primary health care include intersectoral coordination, appropriate technology, equitable distribution and community participation.

15. The following are the functions of male health Workers as a Health Team member; except: *(AIIMS Raipur Grade II 2017)*
a. Conduct survey of the Sub center and maintain record of all families
b. Provide nutrition advice and Immunization to mothers and Children
c. Maintain information of all vital events
d. Promote health education activities

Explanation: The functions of health worker include community service provider, facilitator, health counselor, co-researcher, member of a team and health educator.

16. Which of the following mission must be emphasized to strengthen health care system in the country?
a. Increasing opportunity to be healthy
b. Financing National Health care Programs
c. Let people manage their own health
d. Supporting environment for healthy habits

17. Which among the following is not a component of primary health care?
a. Immunization b. Family planning
c. Essential drug supply d. Specialized services

18. Eligible couple register is maintained at:
a. Subcenter b. PHC
c. CHC d. District hospital

19. Which among the following committee recommended three-tier health care delivery system in rural India?
a. Bhore Committee b. Jungalwalla Committee
c. Srivastava Committee d. Kartar Singh Committee

20. All among the following are job responsibility of health worker male; except:
a. Sputum collection b. ORS distribution
c. DOTS supervision d. Growth monitoring

MILLENNIUM DEVELOPMENT GOAL AND SUSTAINABLE DEVELOPMENT GOAL

21. How many millennium development goals are there?
a. 7 b. 8
c. 9 d. 10

22. Which country was the first to achieve the goal of halving extreme poverty?
a. Zimbabwe b. Thailand
c. Bolivia d. Ghana

LEVELS OF PREVENTION

23. Secondary prevention is: *(ESIC 2019)*
a. Safe water supply, Vector and animal reservoir control
b. Early detection (diagnosis) of disease and Prompt treatment
c. Good living and working condition
d. Nutritional counseling

Explanation: Secondary prevention aims to reduce the impact of a disease or injury that has already occurred. This is done by detecting (early diagnosis) and promptly treating disease or injury as soon as possible to halt or slow its progress.

24. Prevention of risk factors related to a disease condition is known as:
a. Primordial prevention b. Primary prevention
c. Secondary prevention d. Tertiary prevention

Explanation: Primordial prevention is defined as prevention of risk factors themselves, beginning with change in social and environmental conditions in which these factors are observed to develop, and continuing for high risk children, adolescents and young adults.

25. Level of prevention that includes specific protection is:
a. Primordial b. Primary
c. Secondary d. Tertiary

26. When you immunize a child for measles what type of prevention are you doing?
a. Primordial prevention
b. Health promotion
c. Specific protection
d. Secondary Prevention

27. Monitoring of blood pressure is which level of prevention?
a. Primordial b. Primary
c. Secondary d. Tertiary

28. Patient is on psychotherapy, what is the level of prevention?
a. Primordial b. Primary
c. Secondary d. Tertiary

29. Screening of the disease is which type of prevention?
a. Primordial prevention
b. Primary prevention
c. Secondary prevention
d. Tertiary prevention

30. Target group in secondary prevention:
a. Healthy individuals
b. Healthy-appearing individuals
c. Patients with advanced stage of disease
d. Patient recovering from chronic illness



Ans.

12. d
13. a
14. a
15. b
16. c
17. d
18. a
19. c
20. d
21. b
22. d
23. b
24. a
25. b
26. c
27. c
28. c
29. c
30. b

Knowledge Tree
An Initiative by CBS Publishers & Distributors

"One day in perfect health is much."
—Arabic



CHAPTER 9 PSYCHIATRIC NURSING

SYNOPSIS

INTRODUCTION

- **Mental health nursing** is a specialized area of nursing practice that deals with promotion of mental health, prevention of mental illness, care and rehabilitation of mentally ill individuals both in hospital and community.
- In**1943,** mental health nursing course was first started for male nurses.
- In **1965, Indian Nursing Council** included psychiatric nursing as a compulsory course in the BSc Nursing program.
- In **1967 TNAI,** formed a separate committee for mental health nursing to improve the perception of mental health nursing as well as to set guidelines for nursing teachers to conduct theory classes and clinical training in psychiatric nursing.
- **In 1976,** Masters in Psychiatric Nursing was first started at RAK College of Nursing, New Delhi.

MENTAL HEALTH

- Mental health is an adjustment of human beings to the world and to each other with maximum effectiveness and happiness.
- Mental health is an equilibrium of body, mind and spirit with the environment.

MENTAL ILLNESS

- Mental illness is maladjustment in living. It produces a disharmony in the person's ability to meet human needs comfortably or effectively and to function within a culture.
- Mental illness is health condition involving changes in emotion, thinking and behavior (or a combination of these).

Mental Healthcare Act 2017

- The Indian **Mental Healthcare Act 2017** replaced the Mental Health Act 1987.
- Mental Healthcare Act 2017 (MHA 2017) received presidential consent on April 7th, **2017** and **replaced** the **1987 Act**.

Salient Features of MHA 2017

- **Decriminalization of suicide attempt:** This Act has overturned **309 Indian Penal Code.** The MHA 2017 decriminalizes suicide attempt by mentally ill person.
- **Rights of persons with mental illness**
  - Every person will have the right to access mental healthcare services.
  - Protect mentally-ill person from inhuman treatment.
  - Mentally ill patients to have access to free legal services and right to complain about shortcoming of provision of treatment.
  - **Advance directive:** Empowers a mentally ill person to have the right to make an advance directive toward the way he/she wants to be treated.
- The government has to set up Central Mental Health Authority at national level and State Mental Health Authority at state level.
- The Act outlines the process of admission, treatment and discharge of patients.
- **No ECT** therapy without use of muscle relaxants.
- **No ECT** therapy for minors.
- **Financial Punishment:** Up to 6 months of imprisonment or ₹10,000 or both for violating of provisions of MHA 2017. Repeat offenders may face up to 2 years' imprisonment or fine of ₹50,000 – 5,00,000 or both.
- **Reception order:** Refers to an order for admission and detention of a mentally ill person in a psychiatric hospital.

THEORIES OF PERSONALITY DEVELOPMENT

Freud's Stages of Psychosexual Development (Table 1)

TABLE **1:** **Stages of psychosexual development**

Stages of development	Main characteristics	Examples of unsuccessful task completion
Oral (Birth to 18 months)	Focus of libido is on Mouth, Tongue and Lips. Pleasure centers on mouth – sucking, biting, chewing	Smoking, overeating, obesity, alcoholism, nail biting, drug addiction, difficulty in trusting others

Contd...

Stages of development	Main characteristics	Examples of unsuccessful task completion
Anal (18 months to 3 years)	Pleasure focuses on bowel and bladder. Elimination and toilet training are central focus.	Perfectionism or messiness, obsessive compulsive disorder.
Phallic (3–6 years)	Awareness of genital area as source of pleasure. Child learns sexual identity. The development of **Electra complex *(female)*** and **Oedipus complex *(male)*** occurs during this stage of development. In this, Child develops unconscious desire to eliminate the parent of the same sex and to possess the parent of the opposite sex	Sexual dysfunction (transexuality, homosexuality, sexual identity problem), difficulty in accepting authority
Latency (6–12 Years)	Quite stage in sexual development. Child learns to socialize.	Inability to conceptualize; lack of motivation in school or job.
Genital (12 years to adulthood)	The genitals are again the focus of stimulation. Sexual maturity and satisfactory relationships with opposite sex is the central focus	Unsatisfactory relationship, impotence, premature ejaculation.

Erikson's Stages of Personality Development (Table 2)

TABLE **2:** **Stages of personality development**

Stage and approximate ages	Important events	Virtue	Tasks	Consequences of unsuccessful task completion
Infants Trust versus mistrust Birth to 18 months	Feeding	Hope	Viewing the world as safe and reliable, relationships as nurturing, stable and dependable	Suspiciousness, trouble with personal relationship
Toddler Autonomy versus shame and doubt 1.5–3 years	Toilet training	Will	Achieving a sense of control and free will	Low self-esteem, dependency
Pre-school Initiative versus guilt 3–6 years	Explorative	Purpose	Beginning development of conscious learning to manage conflict and anxiety	Passive personality, strong feeling of guilt
School age Industry versus inferiority 6–12 years	Schooling	Competence	Emerging confidence in child's own ability, taking pleasure in accomplishments	Unmotivated, unreliable
Adolescence Identity versus role confusion 12–19 years	Social relationship	Fidelity	Formulate a sense of self and belongingness	Substance abuse, difficulty in keeping personal relationship
Young adult Intimacy versus isolation 20–40 years	Relationship	Love	Formulating adult, loving relationship and meaningful attachment to others	Emotional immaturity, may deny need for personal relationship
Middle adult Generativity versus stagnation 41–65 years	Risk and parenthood	Care	Being creative and productive, focus is on establishment of family and guiding to the next generation	Inability to show concern for anyone but self
Maturity Ego integrity versus despair 65 years to death	Reflection of life	Wisdom	Accepting the responsibility for one's self and life	Has difficulty dealing with issues of aging and death, may have feeling of hopelessness



"Man needs difficulties; they are necessary for health."
—Carl Jung



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

DEFINITION AND HISTORY OF PSYCHIATRIC NURSING

1. Which of the following is not a medicopsychiatric condition? *(AIIMS BPL NO 2018)*
a. Insulinoma
b. Agitated depression
c. Hyperthyroidism
d. Angina

Explanation:
- Agitated depression is a psychiatric condition without organic involvement (medical condition). Agitated depression is also known as "melancholia agitation." It is known as "mixed mania" or "mixed features." Other conditions are medicopsychiatric condition.
- Strategy: Use the rule of elimination to solve this question. Find out three medical conditions which are associated with psychiatric condition (medicopsychiatric condition) and eliminate them. Among given options, the medical conditions that are associated with psychiatric conditions are Insulinoma, Hyperthyroidism and Angina.

2. Who is the father of modern clinical psychiatry?
a. Benjamin Rush
b. Philippe Pinel
c. Emil Kraepelin
d. William Tuke

Explanation: Philippe Pinel is considered as the father of modern psychiatry and Benjamin Rush is considered as the father of American psychiatry. German physician Johann Christian Reil coined the term "psychiatry".

3. Which of the following is one of the general principles of mental health nursing?
a. Judgment of patient symptoms
b. Use self-understanding as a therapeutic tool
c. Repeated talking
d. Focus on symptoms of patients

4. Father of Intelligence test is: *(DSSSB PHN, 2015)*
a. Alfred Binet
b. Erik Erikson
c. Alfred Adler
d. Carl Jung

Explanation:
- Alfred Binet (early 1900s) is known as the man who created the first intelligence test in the form as we know them today. He is commonly known as the father of IQ testing.

Theorists	Theory
Alfred Binet	Father of intelligence test
Erik Erikson	Psychosocial development
Alfred Adler	School of individual psychology.
Carl Jung	Theory of the Collective Unconscious, Myers-Briggs personality tests

5. Cognitive model of depression was given by:
a. Beck
b. Skinner
c. Cerletti
d. Freud

THEORIES OF PERSONALITY DEVELOPMENT

6. According to Freud's Psychosexual development theory, Electra complex is a characteristic feature seen in _____. *(AIIMS Mangalagiri, Faculty Entrance 2022)*
a. Oral stage
b. Anal stage
c. Phallic stage
d. Latent stage

7. According to Erikson's stages of Personality developement, the stage pertaining to the age group 30 to 65 years is: *(AIIMS Mangalagiri, Faculty Entrance 2022)*
a. Industry vs. Inferiority
b. Identity vs. Role confusion
c. Intimacy vs. Isolation
d. Generativity vs. Stagnation

8. Which among the following is the Developmental task attainment of School age children? *(AIIMS Mangalagiri, Faculty Entrance 2022)*
a. Object permanence
b. Domestic mimicry
c. Ritualism
d. Concept of conservation

9. Cognitive development theory was proposed by: *(AIIMS Mangalagiri Faculty Entrance 2022)*
a. Jean Piaget
b. Sigmund Freud
c. Erik Erikson
d. Lawrence Kohlberg

10. Freud's model of development which comprises 'id, ego and superego' is called:
a. Genetic model
b. Unconscious model
c. Constructive model
d. Structural model

Explanation: Structural model: Freud developed the psychoanalytic theory of personality development, which argued that personality is formed through conflicts among three fundamental structures of the human mind: the id, ego, and superego.

11. Topographical model of mind by Freud is:
a. Id - ego - superego
b. Conscious - preconscious - unconscious
c. Regression - repression - suppression
d. Denial - rationalization - projection



Ans.

1. b
2. b
3. b
4. a
5. a
6. c
7. d
8. d
9. a
10. d
11. b

Nursing Knowledge Free
An Initiative by CBS Nursing Division

"One day in perfect health is much."
—Arabic



CHAPTER 10 OBSTETRIC AND GYNECOLOGICAL NURSING

SYNOPSIS

ANATOMY OF FEMALE REPRODUCTIVE SYSTEM

Organs engaged in copulation, fertilization, growth and development of the fetus and its delivery are reproductive organs in female. These organs are broadly divided into:

- External genitalia
- Internal genitalia
- Accessory reproductive organs

External Genitalia (Vulva, Pudendum)

- **Mons Pubis**: It is a pad of subcutaneous adipose tissue anterio superior to pubic symphysis. It is covered by hair in adults.
- **Labia Majora**: Subcutaneous tissue covering the vulva at the sides (homologous to scrotum in males).
- **Labia Minora**: Thin fold of skin without fat located inside the labia majora. Made up of erectile connective tissue (homologous to penile urethra and part of skin of penis in males).
- **Clitoris**: Small erectile body located anteriorly to vulva consisting of glans, body and two cura. (homologous to penis in males).
- **Vestibule**: It is triangular space consisting of four openings:
  1. Urethral opening
  2. Vaginal orifice and hymen
  3. Opening of Bartholin's ducts
  4. Skene's gland
- **Perineum**: Muscle and tissue located between the vaginal opening and anal canal.

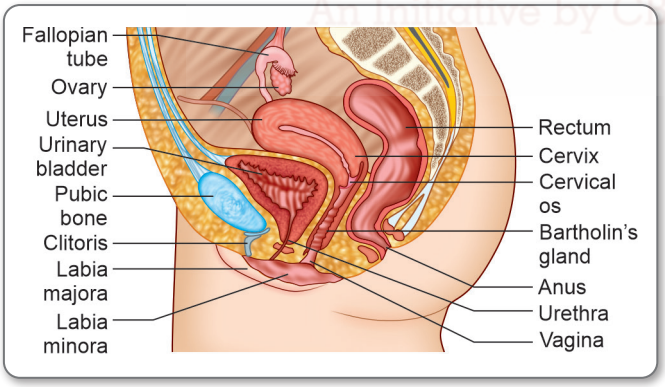


Figure 1: Anatomy of female reproductive system

Internal Genitalia

Vagina

- Vagina connects the cervix to external genitalia.
- It is located between rectum and bladder.
- 2.5 cm in diameter, it is widest in upper part and narrowest at introitus.
- From puberty, vaginal pH is acidic (4–5 pH) because of lactic acid produced by Doderlein's bacilli.

Cervix

- It connects the vagina with the main body of the uterus
- The cervix is composed of two regions:
  1. The endocervix is the proximal and inner part of the cervix. It is lined by simple columnar epithelium (mucus secreting).
  2. The ectocervix portion of the cervix projects in the vagina. It is lined by stratified squamous non-keratinized epithelium.
- **Functions:**
  - Facilitates passage of sperm into the uterine cavity.
  - Prevents uterine cavity from bacterial invasion by frequent shedding of the endometrium, thick cervical mucus and a narrow external os.
- **Blood supply:** Descending branches of the uterine arteries supply cervix and vagina.
- **Nerve supply:** Sympathetic nerves from the inferior hypogastric plexus (T10–L1) supply the uterus and cervix. The pudendal nerves (S2, 3, 4) supply the vagina and pelvic outlet.

Fallopian Tubes (Uterine Tube, Oviduct)

These are paired structures measuring 10 cm. It has four parts: (i) intramural or interstitial, (ii) isthmus, (iii) ampulla and (iv) infundibulum. **Functions** are transport of gametes, is the site of fertilization and also helps in the survival of zygote by its secretions.

Ovaries

- The female gonads consist of 2 ovaries, one on either side of the uterus.
- Each ovary is approximately 3–5 cm long, 2–3 cm wide and 1–3 cm thick in the menstrual years.
- The ovary is attached to the broad ligament by the **mesovarium.**
- The ovary is composed of a medulla and cortex, covered with germinal epithelium.

Nursing Knowledge Hub
An Initiative by CBS Nursing Division

Functions

- **Oogenesis:** Formation of mature ovum from the follicle into pelvic cavity.
- **Ovulation:** Expulsion of the matured ovum from Graafian follicle into the fimbriated end of the fallopian tube.
- **Secretion of hormones:** Estrogen and progesterone.
- **Estrogen:** Secreted under the influence of FSH, it promotes the development and maintenance of female reproductive structures, feminine secondary characteristics and breasts. It also increases protein anabolism and stimulates long bone calcification.
- **Progesterone:** Secreted under the influence of LH and works with estrogen to prepare endometrium for implantation of fertilized ovum. It inhibits uterine contraction during pregnancy and prepares mammary glands to secrete milk.

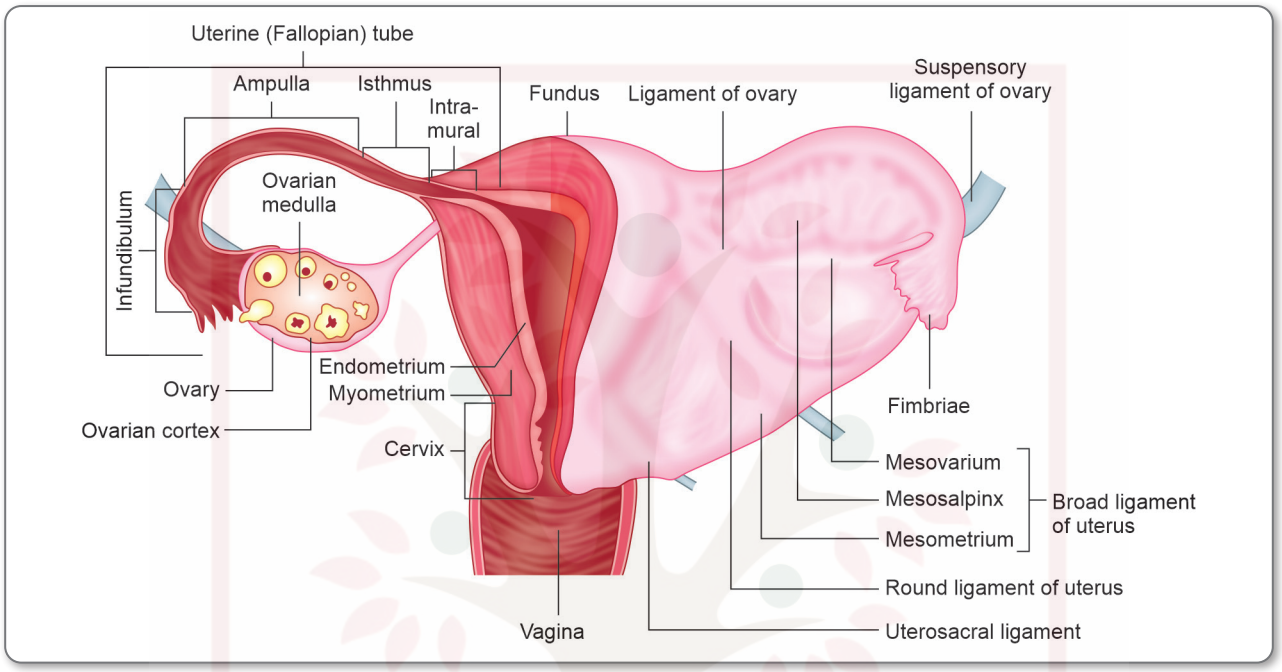


Figure 2: Anatomy of uterus and fallopian tube

Uterus

Anatomy of Uterus

- Uterus is a pear-shaped child bearing organ located in lesser pelvis.
- **Position:** Anteverted and Anteflexed.
- **Measurements:**
  - **Length:** 3 inches (8 cm).
  - **Breadth (at fundus):** 2 inches (5 cm).
  - **Thickness:** 1 inch (2.5 cm).
  - **Weight:** 50–80 g
- Uterine wall is composed of three layers:
  1. **Perimetrium:** Outermost serous layer.
  2. **Myometrium:** Middle layer
  3. **Endometrium:** Innermost mucosal lining of uterine cavity. Thickness changes during menstrual cycle.
- The uterus is divided into two main parts:
  - **The body:** The large upper 2/3rd pear-shaped part.
  - The cervix is a small lower 1/3rd cylindrical part.
  - The junction between the body and cervix is called isthmus.
  - The uterine tubes are attached to the upper part of the body. The point of fusion between the uterine tube and body is called cornu of the uterus.
  - Ligaments supporting uterus (primary support): Round ligament, uterosacral, transverse cervical, pubocervical.



Key Points

- Shape of the nonpregnant uterus is **pyriform**.
- During pregnancy, uterus becomes **globular at 12 weeks**.
- The normal position of the uterus is either **anteversion** or **anteflexion** in the nonpregnant state.
- The uterus **weight** varies from **50 to 80 g**, and **average is 60 g**.
- Uterine measures about 7.5 cm in length, 5 cm wide at its upper part, and nearly 2.5 cm in thickness in adults. **(7.5 x 5 x 2.5)**
- Peritoneal fold present behind the uterus is called **pouch of Douglas**.

Fallopian Tubes (Uterine Tubes)

- **Fallopian (uterine) tubes** are approximately 10 cm (usually 7 to 12 cm) in length, connecting the ovaries to the uterus.

Nursing Knowledge Tree
An Initiative by CBS Nursing Classes

"Man needs difficulties; they are necessary for health."
—Carl Jung



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

ANATOMY OF FEMALE REPRODUCTIVE SYSTEM

1. All of the following are the parts of vulva; except:
a. Bartholin's gland
b. Vaginal opening
c. Mons pubis
d. Ampulla

Explanation: The vulva consists of the external female sex organs. The vulva includes the mons pubis, labia majora, labia minora, clitoris, vestibular bulbs, vulval vestibule, urinary meatus, the vaginal opening, and Bartholin's and Skene's vestibular glands. The urinary meatus is also included as it opens into the vulval vestibule.

2. The structure that provides a pad of fatty tissue for the external female genitalia is:
a. Perineum
b. Labia minora and majora
c. Mons pubis
d. Vulva

3. Identify the parts of uterus among the following: *(AIIMS Raipur Staff Nurse Grade I-2018)*
a. Body
b. Isthmus
c. Cervix
d. All of these

Explanation: The uterus has four major regions: Fundus, Body, Isthmus and cervix. So, all three given options are the parts of uterus.

4. The most common anatomical position of uterus is:
a. Anteverted and anteflexed
b. Retroverted and retroflexed
c. Retroverted and anteflexed
d. Anteverted and retroflexed

Explanation: Normal uterus is anteverted and anteflexed. The normal position is an anteverted uterus, which is tipped forward. The uterine position is also sometimes described in relation to the location of the fundus; that is, an anteflexed uterus, which is normal and where the fundus tilts forward.

5. Structures that support the uterus include:
a. Round ligament
b. Broad ligament
c. Cervicovaginal junction
d. All of these

6. The shape of nonpregnant uterus is:
a. Globular
b. Pear shaped (pyriform)
c. Oval
d. Cylindrical

7. Ovarian artery is a branch of:
a. Renal artery
b. Internal iliac artery
c. Abdominal part of the aorta
d. External iliac artery

8. Arrange the parts of fallopian tube from medial to lateral order:
a. Interstitial
b. Isthmus
c. Ampulla
d. Infundibulum
a. a, b, c, d
b. d, c, b, a
c. a, c, b, d
d. b, d, a, c

Explanation: Intramural or interstitial, isthmus, ampulla and infundibulum is the order of arrangement from medial to lateral.

9. Endometrium of the pregnant uterus is known as:
a. Decidua
b. Trophoblast
c. Amnion
d. Chorion

Explanation: Endometrium of pregnant uterus is known as decidua. It will shed following delivery.

10. The falling down of an organ from its normal anatomical position is termed:
a. Protrusion
b. Regurgitation
c. Procidentia
d. Hernia

11. A vaginal fistula that opens into the rectum is called: *(LNJP H D 2012)*
a. Rectovaginal fistula
b. Enterovaginal fistula
c. Vesicovaginal fistula
d. Colovaginal fistula

12. Accumulation of pus in the fallopian tube is known as:
a. Salpingitis
b. Pyosalpinx
c. Hydrosalpinx
d. Hydro-oopinex

13. At term uterus weight is:
a. 200–300 gm
b. 400–500 gm
c. 600–700 kg
d. 900–1000 gm

14. Pacemaker of uterine contraction is:
a. Tubal ostium
b. SA node
c. AV node
d. Purkinje fibers

Explanation: Tubal ostium is the pacemaker of uterine contraction. SA node is the pacemaker of heart.

15. Breast is the modification of which gland?
a. Sebaceous gland
b. Endocrine gland
c. Bartholin's gland
d. Sweat gland

16. Milk production takes place in which part of the breast?
a. Lobes
b. Lobules
c. Mammary duct
d. Nipple

17. Approximately how many lobes are present in each breast?
a. 5–10
b. 10–15
c. 15–20
d. 20–25

18. The layer of uterus that is sloughed off during menstruation is:
a. Endometrium
b. Myometrium
c. Perimetrium
d. Serous layer



Ans.

1. d
2. c
3. d
4. a
5. d
6. b
7. c
8. a
9. a
10. c
11. a
12. b
13. d
14. a
15. d
16. b
17. c
18. a

19. The phase in which the lining cells of the ovarian follicle are stimulated by luteinizing hormone to develop the corpus luteum, to produce progesterone and estrogen is: *(AIIMS Raipur Grade II 2017)*

a. Menstrual phase b. Proliferative phase
c. Secretory phase d. Follicular phase

20. Bartholin gland is found in: *(RRB Feb 2012)*

a. Cervix b. Ovary
c. Vagina d. Uterus

21. Site of fertilization in female reproductive system is:

a. Ovary b. Cervix *(RRB Feb 2012)*
c. Uterus d. Fallopian tube

Explanation: Fertilization occurs at the ampullary part of fallopian tube.

22. Which chemical present in the acromial tip of sperm facilitates the penetration of zona pellucida of ovum?

a. Hydrochloric acid b. Hyaluronidase
c. Formalin d. Acetyl choline

Explanation: Hyaluronidase is a chemical present in the acromial tip of the sperm which facilitates the penetration of zona pellucida of ovum.

23. Fertilized ovum reaches the uterus in:

a. 3-4 days b. 6-8 days
c. 10-12 days d. 12-14 days

24. True regarding primary oocytes is:

a. All primary oocytes are formed in prenatal life
b. All primary oocytes are formed just after the birth
c. All primary oocytes are formed after menarche
d. Primary oocytes are formed just before menstruation

25. Seven weeks after the conception, the growing structure inside a uterus is now called: *(RAK MSc 2018)*

a. Zygote b. Embryo
c. Fetus d. Neonate

Explanation:

- Conception to 8th week of gestation – Embryo
- 8th week to delivery – Fetus
- Birth to 4 weeks (28 days) – Neonate
- 4 weeks to 1 year–Infant

26. Fleeting abdominal pain due to follicular bleeding causing peritoneal irritation is called: *(Safdarjung NO 2018)*

a. Corpus hemorrhagicum
b. Mittelschmerz
c. Corpus luteum
d. Corpus albicans

Explanation: Minor bleeding from the follicle into the abdominal cavity may cause peritoneal irritation and fleeting lower abdominal pain. It is known as mittelschmerz.

After ovulation, hemorrhage into the remains of the follicle usually occurs resulting in a structure called a corpus hemorrhagicum.

27. The process of maturation of the female egg is termed:

a. Spermatogenesis b. Oogenesis
c. Archiogenesis d. Ovogenesis



Ans.

19. c
20. c
21. d
22. b
23. a
24. a
25. b
26. b
27. b
28. b
29. b
30. a
31. b
32. c
33. a
34. c
35. a
36. c
37. b
38. a
39. b
40. b
41. a

28. What is the fertilization life span or viability for oocyte?

a. <12 hours b. 12-24 hours
c. 24-48 hours d. 48-72 hours

29. Discharge of ovum from the ovary is referred to as:

a. Maturation b. Ovulation
c. Proliferation d. Nidation

30. Which of the following term refers to infrequent and irregular ovulation?

a. Oligoovulation b. Hypoovulation
c. Polyovulation d. None of these

31. After fertilization of ovum, the initial mitotic division of the zygote results in the formation of:

a. Morula b. Blastomeres
c. Oocytes d. Blastocysts

32. Implantation occurs on:

a. 1 to 3 days after fertilization
b. 3 to 5 days after fertilization
c. 6 to 12 days after fertilization
d. 12 to 16 days after fertilization

33. Implantation of zygote is facilitated by:

a. Trophoblast b. Medulla
c. Cortex d. Blastocysts

34. In case of in-vitro fertilization, fertilized ovum transferred into the uterine cavity at:

a. 1–2 cell stage b. 2–4 cell stage
c. 4–8 cell stage d. 16–24 cell stage

35. Basal body temperature will following ovulation:

a. Increase
b. Decrease
c. No change
d. Fluctuation

36. Time required to reach in two cell stage after fertilization is:

a. 10 hours b. 20 hours
c. 30 hours d. 40 hours

37. Where does oogenesis occur in human?

a. Inner most layer of ovary
b. Outermost layer of ovary
c. Fallopian tube
d. Uterus

38. How many numbers of chromosomes a primary oocyte/ primary spermatocyte contains?

a. 46 b. 44
c. 23 d. 22

39. Fertilization of two or more ova from the same cycle by sperm from separate acts of sexual intercourse is known as:

a. Superfetation b. Superfecundation
c. Dizygotic pregnancy d. Monozygotic pregnancy

40. In which part of the uterine tube does the fertilization process occur?

a. Isthmus b. Ampulla
c. Infundibulum d. Intramural part

PRINCIPAL EVENTS OF EMBRYONIC AND FETAL DEVELOPMENT

41. Neural tube develops from:

a. Ectoderm b. Endoderm
c. Mesoderm d. All of these

"One day in perfect health is much."
—Arabic



CHAPTER 11 PEDIATRIC NURSING

SYNOPSIS

GROWTH AND DEVELOPMENT

Growth

Growth denotes the net increase in size or mass of tissue. It is a quantitative measurement.

Development

Development specifies the maturation of function. It is a qualitative measurement.

Stages of Growth and Development

Prenatal Period

Ovum 0–14 days after conception
Embryo 14 days to 8 weeks
Fetus 8 weeks to birth (8–40 weeks)

Postnatal Period

Neonate/newborn	0–28 days
Infancy	29 days – 1 year
Toddler	1–3 years
Pre-school child	3–6 years
School going child	6–10 years (girls) 6–12 years (boys)
Adolescent	puberty–adulthood
Early adolescent	12–14 years
Middle adolescent	14–16 years
Late adolescent	16–20 years

Principles of Growth and Development

- Growth and development in children is a continuous orderly process.
- Growth pattern of every individual is unique.
- Different body tissues grow at different rates.
- Development is a continuous process.
- Development depends upon the maturation of nervous system.
- The sequence of attainment of milestone is same in all children.
- The process of development progresses is in cephalocaudal direction and proximodistal direction.
- Certain primitive reflexes have to be lost before attainment of relevant milestone.
- The initial disorganized mass activity is gradually replaced by specific and willful actions.
- Development depends on maturation and learning.

Weight

The average weight of a neonate is 3 kg. In Indian children, 2.5 to 3.5 kg weight of a neonate is considered normal.
In the first few days after birth, newborn loses extracellular fluid equivalent to 10% of the body weight. So, there will be slight decline in the birth weight of the baby. The usual pattern of gaining weight is shown in Table 1.

TABLE 1: Average weight chart for children

Age of the baby*	Weight of the baby*
Birth	X
5–6 months	2x
1 year	3x
2 years	4x
3 years	5x
5 years	6x
7 years	7x
10 years	10x

*(*approximate values are given in the table)*
'x' denotes birth weight of the baby.

Nursing Knowledge Tree
An Initiative by CBS Publishing Division

Weight between ages of 3 months and 12 years can be calculated by using Weech's formula;

3-12 months:

$$\text{Expected weight (kg)} = \frac{\text{Age in Months} + 9}{2}$$

1–6 years:

$$\text{Expected weight} = (\text{Age in years} \times 2) + 8$$

7–12 years:

$$\text{Expected weight (kg)} = \frac{(\text{Age in years} \times 2) + 8}{2}$$

An easy formula to calculate weight in children between 2 and 12 years is:

$$\text{weight (kg)} = \text{Age } \frac{(\text{Age in years} + 3) + 5}{2}$$

Key Points

- The baby attains three times of its birth weight by one year of age.
- The baby attains four times of its birth weight by two years and 5 times by three years of age.

Length/Height (Table 2)

TABLE **2:** **Length/height of children**

Age of the baby*	Length/height of the baby*
Birth	50 cm
3 months	60 cm
6 months	65 cm
9 months	70 cm
1 year	75 cm
2 years	90 cm
4 years	100 cm

Head Circumference (CC)

- Head circumference is measured by placing tape over occipital protuberance at the back and just over the supraorbital ridge and glabella in front.
- Increased head circumference: Hydrocephalous, Macrocephaly.
- Decreased head circumference: Microcephaly.

Chest Circumference (CC)

- The CC is about 3 cm less than the HC at the time of birth (31 cm approx).
- HC and CC become almost equal by 1 year of age and after that CC exceeds the HC.
- CC is measured at the level of nipples in mid-inspiration.
- >5 years' age—measure in standing position.
- 5 years or below: Measure in lying position.

Mid-Upper Arm Circumference (MUAC)

At birth, average MUAC is about 9–11 cm in normal newborn baby

- At 1 year it is 12–16 cm
- At 1–5 years it is 16–17 cm
- At 12 years it is 17–18 cm
- At 15 years it is 20–21 cm

Arm Span (Wing Span)

- Arm span is the distance between the tips of the middle finger of both arms when they are outstretched at right angles to the body.
- The arm span is 1–2 cm less than the height of children below 5 years and by 10–12 years both will be equal. Then arm span exceeds the height.
- **Arm span is greater than height in:**
  - Marfan syndrome, Klinefelter syndrome, Homocystinuria
- **Arm span is less than height in:**
  - Achondroplasia, cretinism



Skin Fold Thickness (SFT)

- Instrument used for measurement is Lange's or Harpenden's skin-fold calipers. It holds a fold of skin over triceps area on the left side.
  - Measure the area between thumb and index finger
  - Triceps skin fold are most popular
  - Ratio of total body water and body weight is a more accurate index of body fat.

Key Points

- Head circumference is a measurement of a child's head around its largest area.
- Head circumference is measured over the most prominent part on the back of the head (occiput) and just above the eyebrows (supraorbital ridges).
- Microcephaly is defined as a head circumference 2 standard deviations (SDs) below the mean for age and sex or roughly less than the 3rd percentile.
- The Chest Circumference (31 cm approx.) is about 3 cm less than the Head Circumference at the time of birth.
- Head Circumference (HC) and Chest Circumference (CC) are almost equal by 1 year of age and after that CC exceeds the HC.
- The arm span is 1-2 cm less than height of children below 5 years and by 10-12 years both will be equal. Then arm span exceeds the height.
- In children, arm span is greater than height in Marfan's syndrome, Klinefelter's syndrome and Homocystinuria.
- Arm span is less than height in Achondroplasia, cretinism.
- Instrument used for measurement of skin fold thickness is Lange's or Harpenden's skin fold callipers.
- The first two teeth to erupt are the two bottom central incisors.

Eruption of Teeth (Table 3)

Primary Teeth

The primary dentition consists of 20 teeth. There are four incisors (two central and two lateral), two canines and four molars in each jaw.

TABLE **3:** **Teeth eruption according to the age (till 33 months)**

Age	Eruption
Birth	Nil
8–12 months	Central incisors
9–13 months	Lateral incisors
13–19 months	First molar
16–22 months	Canines
25–33 months	Second molars

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

"When you are sick of your sickness, you are no longer sick."
—Chinese Proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

INTRODUCTION TO GROWTH AND DEVELOPMENT

1. Which part of the brain controls and integrates activities of the autonomic nervous system?
a. Hypothalamus b. Epithalamus
c. Midbrain d. Thalamus

2. Child can help in household chores, dresses and undresses at?
a. 2 years b. 3 years
c. 4 years d. 5 years

Explanation: Key social milestones achieved at 5 years of age include Dressing and undressing asking questions about meaning of words; engaging in domestic role-playing.

3. Low recurrence in nocturnal enuresis is seen with which of the following interventions?
a. Desmopressin b. Oxybutynin
c. Imipramine d. Bed alarms

Explanation: Best success rate is seen with bed alarms which when goes off, child should get up and go to the toilet. Participation of parents is critical in success of this intervention. However, initial management is behavior modification like limiting fluid intake in evening hours and awakening the child during night to go to bathroom. Parents should avoid shaming of the child.

4. Early strict toileting can result in which of the following condition?
a. Night terror b. Temper tantrums
c. Encopresis d. Nocturnal enuresis

Explanation: Night terror refers to disconcerting, screaming or crying that a toddler or young child may have at night during sleep. When a child is toilet-training, he may feel torn between pleasing his parents and being unable to resist soiling. He wants to assert his independence, but he also has a fear of a lack of control. This anxiety and stress can contribute to a child experiencing night terror.

5. Which of the following milestone is a red flag sign in child development if not attained?
a. Walking at 12 months
b. Talking single word at 12 months
c. Social smile at 3 months
d. Vocalization at 2 months

6. Asperger's syndrome is a:
a. Metabolic disorder
b. Neuromuscular disorder
c. Degenerative disorder
d. Developmental delay

7. Taste perception of a baby develops at:
a. Birth b. 3 months
c. 6 months d. 8 months

Explanation: Newborns are born with odor and taste preferences acquired in the womb from the smell and taste of amniotic fluid which is influenced by what mother eats. At birth, infants can show expressions of pleasure or disgust when presented with pleasant odors such as honey/milk or unpleasant odors and taste.

8. What does it mean when a baby has 25th percentile of head circumference (HC)?
a. 25% of children will have HC more than that
b. The child is having 25% of normal HC
c. 25% of children will have HC less than that
d. 75% of the children will have HC less than that

Explanation: Percentile is a number where a certain percentage of scores fall below that number. If a child has 25th percentile HC means that there are 25% of children who has HC less than that.

GROWTH CHART

9. Expected weight of 1-year-old child, when the birth weight is 3.5 kg: *(RAK MSc 2018)*
a. 7 kg b. 6 kg
c. 9.5 kg d. 10.5 kg

Explanation: As the child ages the weight increase is as follows:

- X Weight at Birth
- 2x 5 months
- 3x 1 year
- 4x 2 years
- 5x 3 years
- 6x 5 years
- 7x 7 years
- 10x 10 years

So, Birth weight triples (3x) at 1 year.
Therefore, the correct answer is 3.5 × 3 = 10.5 in a year

10. Which of the following best describes typical annual growth during the school age years?
a. Few physical differences are noticeable between age mates throughout this period
b. Fat pads increase in number and add to the normal "chubby" appearance of the child
c. Child grows an average of 2 inches (5.2 cm) per year
d. Child gains an average of 3 pounds (1.4 kg) per year



Ans.
1. a
2. d
3. d
4. a
5. c
6. d
7. a
8. c
9. d
10. c

11. Growth chart is also known as:
a. New Ballard scale
b. Road to health chart
c. Apgar Score
d. GCS score

12. Which of the following is not true regarding the birth weight of a newborn? *(AIIMS-BBS SNO 2019)*
a. Birth weight less than 5% of normal on the day of birth requires further investigation
b. Typical birth weight of newborn is between 2.7 kg and 4.0 kg
c. Newborns lose 10% of their birth weight by 3-4 days of age
d. Newborns gain the lost birth weight by 10th day of life

Explanation: Normal birth weight of the baby is between 2.5 kg and 4.5 kg. Newborns often lose around 10% in the first 4 to 5 days after birth but regain it by about 10 to 12 days of age. So, 5% loss on day of birth is considered normal and requires no further investigation.

13. In a healthy child, the head and chest circumference equal each other around the age of:
a. 3-6 months
b. 6-9 months
c. 9-12 months
d. 15-18 months

Ref: OP Ghai 8th ed. p 13

Explanation: In a healthy child, the circumference of the chest is about 2-3 cm less than head circumference at birth.

The circumference of head and chest is almost equal by the age of 1 year. Thereafter, the chest circumference exceeds the head circumference.

14. What is the relationship between head circumference (HC) and chest circumference (CC) in a newborn baby?
a. Both are equal at the time of birth
b. HC more at the time of birth and both become equal by 1 year and then CC exceeds
c. CC is more at the time of birth and then both become equal by 1 year and then HC exceeds
d. None of the above

15. Normal mid upper arm circumference (MUAC) at birth is about:
a. 6–8 cm
b. 9–11 cm
c. 12–14 cm
d. 14–16 cm

16. The best method to perform physical examination on a 2-year-old child is:
a. Proximally to distal
b. From head to toe
c. From least to most intrusive
d. Abdomen to head

17. The nurses assess a 6-month-old child during well-baby-clinic. Nurse makes all the following observations. Which of the following assessments made by the nurse is an area of concern indicating a need for further evaluation? *(RAK MSc 2018)*
a. Absence of Moro reflex
b. Closed posterior fontanel
c. Three pounds weight gain in two months
d. Moderate head lag when pulled to sitting position

Explanation: Head control is expected at the age of 3 months in a baby. Starting at 6 weeks head control develops and there is only a slight lag at 12 weeks of age. Infant lifts head from supine position when pulled up at 5 months of age. So, head lagging in a 6-month-old infant requires attention.

All other findings are normal for a 6-month-old infant.

18. Maximum absolute growth is seen at: ***(AIIMS 2001)***
a. 0–3 years
b. 3–5 years
c. 5–10 years
d. 14–16 years

Explanation: Maximum growth can be seen in girls by 10 years (8–13) and in boys by 12 years (10–15). This growth spurt is because of puberty attainment.

19. The premature closure of the sagittal suture is called: *(AIIMS Raipur Grade II 2017)*
a. Scaphocephaly
b. Oxycephaly
c. Acrocephaly
d. Anencephaly

Explanation: Scaphocephaly is a type of cephalic disorder which occurs when there is a premature fusion of the sagittal suture.

- **Oxycephaly:** Premature closure of coronal suture.
- **Acrocephaly:** Premature closure of the lambdoid and coronal sutures.
- **Plagocephaly:** Asymmetrical distortion (flattening of one side) of the skull.
- **Anencephaly:** Absence of major portion of brain.

20. The average length of a normal newborn baby is:
a. 45 cm
b. 43 cm
c. 50 cm
d. 35 cm

21. Correct regarding fontanel is:
a. Anterior fontanel closed at 18 months of age
b. Posterior fontanel closed at 6-8 weeks of age
c. Anterior fontanel known as bregma and posterior is lambda
d. All of the above

22. How much a neonate should gain weight after a successful feeding?
a. 3-8 g/day
b. 10-15 g/day
c. 15-20 g/day
d. 25-30 g/day

23. Mid upper arm circumference value in a moderately malnourished child is:
a. <11.5 cm
b. <12.5 cm
c. <13.5 cm
d. <14.5 cm

MILESTONES

24. At what age does a child normally develop 'social smile' milestone? *(AIIMS Bhopal Nursing Officer, 2018)*
a. 12 weeks
b. 4 weeks
c. 16 weeks
d. 8 weeks

Explanation: By 2 months of age child develops social smile. At this age, the baby also looks at parent, coos, makes gurgling sounds and turns head toward sounds.

25. Crawling of an infant occurs at: ***(DSSSB PHN, 2015)***
a. 8 to 9 months
b. 2 to 3 months
c. 4 to 5 months
d. 6 to 8 months



Ans.
11. b
12. a
13. c
14. b
15. b
16. c
17. d
18. d
19. a
20. c
21. d
22. d
23. b
24. d
25. a

Nursing Knowledge Tree
An Initiative by CBS Publishing Division

"Better ten times ill than one time dead."
—Yiddish

CHAPTER 12 BIOCHEMISTRY AND NUTRITION

SYNOPSIS

BIOCHEMISTRY

INTRODUCTION

- Biochemistry is the study of chemical processes within a body and related to the living organisms.
- The first enzyme discovered was 'diastase' (now called 'amylase') in the year 1833.
- James Watson, Francis Crick, Maurice Wilkins, and Rosalind Franklin (1950s) co-discovered the **helix structure of DNA.**

Key Points

- The name Biochemistry was coined in 1903 by a German chemist named Carl Alexander Neuber (1877-1956). He is regarded as "Father of Modern Biochemistry".

THE CELL

- The cell is the structural and functional unit of life.
- Living cells are divided into two groups: Prokaryotes, e.g., Bacteria (unicellular)
- Eukaryotic cells, e.g., Animal cells, plant cells, fungi and protozoa (unicellular or multicellular) (Fig. 1)

TABLE **1: Differences between prokaryotic cells and eukaryotic cells**

Parameters	Prokaryotic cells	Eukaryotic cells
Cell size	Small (1–10 nm)	Large (1 to 10000 times larger in size than prokaryotic cells)
Overall organization	Simple	Complex
Cell wall	Present	Absent
Cell membrane	Present sometimes surrounded by capsule	Present
Nucleus	Single nucleus which contains double helix DNA that is present in a poorly defined region called nucleoid	Well defined nucleus with a membrane and multiple DNA double helices organized into chromatin
Reproduction	Asexual	Sexual
Examples	Bacteria, blue green algae	Animal and plant cells

Contd...

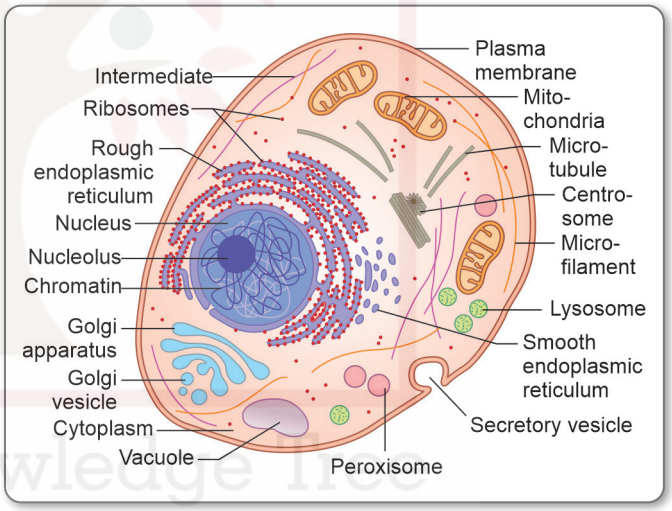


Figure 1: Animal cell structure

Key Points

Cell Organelles

Nucleus

- **Nucleus** is the largest component of the cell, containing DNA organized into separate chromosomes.
- Nucleus is surrounded by nuclear membrane. Nuclear membrane consists of two layers.
- Function of nucleus includes control of cell division (DNA replication), protein synthesis.

Contd...

Nursing Knowledge Tree
An Initiative by CBS Nursing Point

Endoplasmic Reticulum
- Cisternae have a role in the exchange of materials between the cell and the extracellular fluid.
- **Rough Endoplasmic reticulum (RER):** Also called granular type of endoplasmic reticulum. It contains ribosomes.
- **Smooth Endoplasmic reticulum (SER):** Also called agranular type of endoplasmic reticulum. It does not contain ribosomes. SER has enzymes for biosynthesis of lipids and glycoproteins.

Ribosomes
- Ribosomes on the RER are involved in synthesis of proteins for export from the cell.
- Free ribosomes present in the cytoplasm synthesize proteins for use within the cell.

Golgi Apparatus (Golgi complex, Golgi body)
- Golgi apparatus moves molecules from endoplasmic reticulum to their destination.
- It is the site where secretions from other organelles are brought and assembled.
- Newly-synthesized proteins are transferred from RER and stored in Golgi apparatus temporarily.

Mitochondria
- Mitochondria are the major organelle of a eukaryotic cell.
- Mitochondria contains its own DNA.
- **Powerhouse of the cell:** Mitochondrion produces energy in the form of ATP (Adenosine Triphosphate).

Lysosomes
- It is a membrane-bound cell organelle and are structurally and chemically spherical vesicles.
- Lysosomes are absent in RBC.
- Lysosomes act as **waste disposal system of the cell.**
- They are responsible for cellular homeostasis.
- They are responsible for autolysis, so it is called as Suicide-bags.

Peroxisomes
- Major function of peroxisomes is in hepatocytes, involved in oxidation of fatty acids.

Cytosol
- It is a colloidal solution of proteins containing nearly 70% water.

Plasma Membrane (cell membrane)
- It is the outer membrane of the cell.
- It is composed of lipids, proteins and carbohydrates.
- Functions include compartmentalization, providing cell shape, cell movement, transport of substances and signal transduction.

TRANSPORT MECHANISMS

There are three types of transport systems, i.e., Diffusion, Facilitated diffusion and Active transport.

1. **Diffusion (simple diffusion or passive diffusion):** It is a process in which molecules of a material that move from an area of higher concentration to an area of lower concentration. Some solutes, like O_2, N_2, CO_2, and NO, urea move across cell membrane by diffusion. The net movement of molecule from one side to the other side of the cell membrane continues until concentration on both sides is at equilibrium.
   - **Channels** are pore-forming membrane proteins which facilitate flow of ions across secretory and epithelial cells.
   - **Osmosis:** It refers to the spontaneous net movement of solvent molecules through partially permeable (semipermeable) membrane into a region of higher solute concentration. **Aquaporin** selectively conducts water molecules in and out of the cell.
   - **Ionophores:** These are lipid-soluble molecules which facilitate transport of ions across the lipid bilayer of the cell membrane.
2. **Facilitated diffusion:** Transport of solutes through membrane transport proteins (carrier molecules) without expenditure of metabolic energy, e.g., Glucose transporters (GLUT), Cl^-/ HCO_3 exchanger, ATP-ADP translocase.
3. **Active transport:** Transport protein moves a specific molecule against the concentration gradient (lower concentration to higher concentration). This process requires energy provided by ATP. It is classified into primary and secondary active transport.

Transport of Large Molecules

- **Endocytosis:** It is a mechanism for the uptake of large molecules such as proteins, polysaccharides, or polynucleotides.
  - **Phagocytosis (cell eating):** Ingestion of bacteria, viruses, etc. It occurs only in specialized cells like macrophages and granulocytes.
  - **Pinocytosis**: Ingestion of liquid into a cell by the budding of small vesicles from the cell membrane.
- **Exocytosis:** It is reverse of endocytosis. It involves release of macromolecules to the exterior of cell.

Key Points

- A hypotonic solution is a type of solution that has a lower osmotic pressure than another solution.
- When the cell is placed into a hypotonic solution, it rapidly gains water by osmosis and swells.
- When the cell is placed in the hypertonic solution, it loses water by osmosis and shrinks.



"Man needs difficulties; they are necessary for health."
—Carl Jung



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

INTRODUCTION AND ANATOMY OF CELL

1. Pyknosis is characterized by: *(Safdarjung NO 2018)*
a. Nuclear basophilia
b. Nuclear shrinkage
c. Nucleus disintegration
d. Nucleolus disintegration

Explanation: Pyknosis is irreversible cell death characterized by nuclear condensation/shrinkage and clumping of chromatin.

2. The activation of Caspases is likely to lead to: *(Safdarjung NO 2018)*
a. Apoptotic cell death
b. Blood coagulation
c. Mitotic cell division
d. G1 and S phase of cell cycle

Explanation: Activation of enzymes called Caspases leads to apoptosis which is a pathway of cell death. Caspases are cysteine proteases that help in cleavage of proteins.

3. Mitosis is a condition of: *(Banaras HU 2015)*
a. Cell breakdown
b. Cell division without reduction
c. Cell death
d. Cell division with half chromosomes

4. Powerhouse of the cell is: *(ESIC Chennai May 2012)*
a. Mitochondria
b. Nucleus
c. Golgi bodies
d. Cell wall

5. The aqueous component of the cell, within which various organelles and particles are suspended, is:
a. Cytosol
b. Cytoplasm
c. Nucleus
d. Cytoblast

6. Storage house of iron in a cell is:
a. WBC
b. Reticuloendothelial system
c. Platelet
d. Ribosome

7. Cytokines are responsible for:
a. Pain
b. Touch
c. Sensation
d. Inflammation

8. Largest organelle of a cell is:
a. Golgi apparatus
b. Nucleus
c. Ribosome
d. Endoplasmic reticulum

9. Suicidal bag of cell is:
a. Ribosome
b. Lysosomes
c. Vacuole
d. Nucleus

10. Plasma membrane of eukaryotic organisms is made up of:
a. Phospholipid bilayer
b. Phospholipid monolayer
c. Carbohydrate, protein and fat
d. Carbon, nitrogen and oxygen

11. Structure and motility of the cell is maintained by:
a. Cartilage
b. Microtubules
c. Nucleus
d. Golgi apparatus

12. Produced form of energy is:
a. ATP
b. ADP
c. GTP
d. Actin

13. Cytoplasm refers to:
a. Contents of the cell including nucleus
b. Contents of the cell excluding nucleus
c. Nucleus of the cell
d. Nucleus and cytosol of the cell

14. Protein factory in human cell is:
a. Ribosome
b. Nucleus
c. Cytoplasm
d. Golgi apparatus

15. _____ has no nucleus.
a. RBCs
b. WBCs
c. Lymphocytes
d. Monocytes

16. Phagocytosis is the responsibility of:
a. Eosinophil
b. Neutrophils
c. Monocyte
d. Lymphocyte

17. Which of the following order is correct about phases of mitosis cell division?
a. Prophase - Anaphase - Telophase - Metaphase
b. Prophase - Anaphase - Metaphase - Telophase
c. Prophase - Metaphase - Telophase - Anaphase
d. Prophase - Metaphase - Anaphase - Telophase

18. Name the tissue which is widely and abundantly distributed in human body:
a. Connective tissue
b. Cartilaginous tissue
c. Lymphoid tissue
d. Epithelial tissue

19. Name the epithelium which is most efficient in allowing simple substances across cell:
a. Squamous epithelium
b. Simple stratified epithelium
c. Transitional epithelium
d. Stratified epithelium

20. Among the following, cuboidal epithelium is seen in:
a. Skin
b. Trachea
c. Esophagus
d. Thyroid gland

21. Lining of the uterus is made up of:
a. Simple columnar epithelium
b. Ciliated columnar epithelium
c. Simple squamous epithelium
d. Simple cuboidal epithelium

22. Lining of the trachea is made up of:
a. Simple stratified epithelium
b. Stratified columnar epithelium
c. Columnar epithelium
d. Pseudostratified columnar epithelium



Ans.

1. b
2. a
3. b
4. a
5. b
6. b
7. d
8. b
9. b
10. a
11. b
12. a
13. b
14. a
15. a
16. b
17. d
18. a
19. a
20. d
21. a
22. d

Nursing Knowledge Tree
An Initiative by CBS Nursing Tree

23. Epithelium which allows the stretching and distention of hollow organ and helps to accommodate the content:
a. Simple epithelium
b. Squamous epithelium
c. Transitional epithelium
d. Cuboidal epithelium

24. Among the following, transitional epithelium is present in:
a. Esophagus b. Trachea
c. Urinary bladder d. All of these

25. Formation of scar tissue is:
a. Fibrosis b. Granulation
c. Adhesion d. Keloid

26. The major function of ciliated epithelium present in the uterine tubes is to facilitate:
a. Implantation of fertilized ova
b. Movement of ova in uterine tube
c. Release of ova from fallopian tube
d. Secretion in endometrium

27. Maturation of B-cell lymphocytes takes place at:
a. Blood b. Bone marrow
c. Brain d. Base of the skull

28. Maturation of T-cell lymphocytes takes place at:
a. Thyroid b. Thymus
c. Trachea d. Liver

29. Memory cells are formed from:
a. Neutrophil b. Eosinophil
c. Lymphocytes d. Monocyte

30. Mucous membrane of vagina is lined by:
a. Nonkeratinized stratified squamous epithelium
b. Keratinized Stratified Squamous epithelium
c. Columnar cells
d. Cuboidal epithelium

31. Shrinkage of cell size is known as:
a. Atrophy b. Metastasis
c. Necrosis d. Hypertrophy

32. Identify cellular adaptation among the following:
a. Hypertrophy b. Atrophy
c. Hyperplasia d. All of these

33. Which of the following cellular organelle causes autodigestion?
a. Golgi bodies b. Lysosomes
c. Microsomes d. Peroxisomes

34. Eukaryotic plasma membrane is made up of all; except:
a. Carbohydrates b. Triglycerides
c. Lecithin d. Cholesterol

35. Which of the following occurs in mitochondria and cytosol?
a. Urea cycle b. Glycolysis
c. Gluconeogenesis d. HMP shunt pathway

36. Protein synthesis occurs in:
a. Ribosomes b. Golgi apparatus
c. Lysosomes d. Endosomes

37. In mammalian cells, protein synthesis takes place chiefly at:
a. Smooth endoplasmic reticulum
b. Rough endoplasmic reticulum
c. Nucleus
d. Nucleolus

Explanation: The site of protein synthesis in the cell are ribosomes. These are present attached to the surface of the rough endoplasmic reticulum and also in the free state in the cytoplasm.

38. Main function of mitochondria is:
a. Protein synthesis b. Glycolysis
c. Electron transfer d. Fat synthesis

39. Chromosomal studies are done in which stage?
a. Prophase b. Metaphase
c. Telophase d. Anaphase

TRANSPORT MECHANISMS

40. Which of the following mechanisms facilitates transfer of large particles across cell membrane?
a. Active transport b. Facilitated transport
c. Passive diffusion d. Phagocytosis

41. Physiological mechanism behind the elimination of carbon dioxide from the body is:
a. Osmosis b. Facilitated diffusion
c. Simple diffusion d. Active transport

42. 'Transportation of triglycerides from liver to adipose tissues' is the function of which of the following lipoproteins? *(AIIMS BPL NO 2018)*
a. Low density lipoprotein
b. Intermediate density lipoprotein
c. Very low density lipoprotein
d. High density lipoprotein

Explanation: Liver is mainly responsible for the synthesis of triglycerides. Apo B100 is synthesized by liver around peripheral triglycerides resulting in formation of VLDL secreted from liver into the blood. Thus, VLDL transports triglycerides from liver to peripheral tissues.

43. The pathway through which a cell produces the maximum number ATP molecules is: *(AIIMS-BBS SNO 2019)*
a. Pentose phosphate pathway
b. Glycolysis
c. Lactic acid fermentation
d. TCA cycle

Explanation: TCA cycle produces 38 ATPs (34 ATPs from oxidative phosphorylation + 4 ATPs from substrate level phosphorylation).

44. Water present outside the cells, blood plasma and interstitial space is:
a. ECF b. ICF
c. Metabolic water d. All of these

45. A major function of the TCA is:
a. Oxidation of acetate to oxaloacetate
b. Oxidation of acetate and reduction of nucleotide coenzymes
c. Generation of heat to maintain body temperature
d. Generation of CO_2 from substrates

46. The urea cycle:
a. Converts urea to uric acid.
b. Converts ammonia to urea.
c. Is an energy-producing pathway.
d. Converts urea to ammonia and carbon dioxide.

47. Which of the statements regarding active transport is incorrect?
a. Requires carrier protein
b. Energy dependent
c. Against concentration gradient
d. Transport of water is an example



Ans.

23. c
24. c
25. a
26. b
27. b
28. b
29. c
30. a
31. a
32. d
33. b
34. b
35. a
36. a
37. b
38. c
39. b
40. d
41. c
42. c
43. d
44. a
45. b
46. d
47. d

"Better ten times ill than one time dead."
—Yiddish



CHAPTER 13

MICROBIOLOGY

SYNOPSIS

HISTORICAL PERSPECTIVES OF MICROBIOLOGY

- **Microbiology:** It is the study of microorganisms which are only visible through microscope.
- Aristotle (384-322 BC) and others believed that living organisms could develop from non-living materials.
- Rogen Bacon in 13th century described that the disease caused by a minute "seed" or "germ".
- **Antonie van Leeuwenhoek (1632–1723)**
  - Descriptions of protozoa, basic types of bacteria, yeasts, and algae.
  - The first to see and describe bacteria and their characteristic morphology.
  - Father of Bacteriology and Protozoology.
  - In 1676, he observed and described microorganisms such as bacteria and protozoa as "animalcules".
- **1798:** Edward Jenner introduces the concepts of vaccination using cowpox material to prevent small pox.
- **Louis Pasteur:** He coined the term "microbiology", aerobic, anaerobic.
- He disproved the theory of spontaneous germination.
- He contributed to the development of the first vaccines for the immunization against rabies, anthrax, and chicken cholera.
- He described the scientific basis for fermentation, winemaking, and the brewing of beer and pasteurization.
- Pasteur postulated the **Germ Theory of Disease**, which states that microorganisms are the causes of infectious disease.
- **Joseph Lister (1827–1912)**
  - He is the Father of Antiseptic Surgery.
- **Robert Koch**
  - Discovered causative agent for anthrax, tuberculosis, and cholera.
  - His discoveries, in combination with those of Pasteur, established the Germ Theory of disease
- **Edward Jenner (1749–1823)**
  - First to prevent small pox.
  - He discovered the technique of vaccination.
- **Alexander Fleming**
  - Discovered penicillin in 1929, an antibiotic produced by a fungus that inhibits bacterial growth.
- **Paul Ehrlich:** In 1882, he reported the acid-fastness of tubercle bacillus.

Key Points

- **Louis Pasteur** (1822-1895) is considered the Father of Microbiology.
- **Louis Pasteur introduced sterilization** technique and stem sterilizer, autoclave and hot air oven.
- **Louis Pasteur** introduced first live-attenuated vaccine.
- **Robert Koch** is known as the **Father of Bacteriology**.
- **Robert Koch** introduced **staining technique**.
- **Robert Koch** discovered anthrax bacillus, tubercle bacillus and the cholera vibrios.
- **Joseph Lister** introduced antiseptic surgery.
- **Karl Landsteiner** discovered **ABO blood groups**.
- **Alexander Fleming** discovered the drug **penicillin**.

THE NORMAL BACTERIAL FLORA OF HUMAN BODY

Resident Flora

- These organisms are relatively fixed and regular type of organism found at a given body site.
- They perform functions such as synthesis of vitamin K, absorption of nutrient, breakdown of nutrients, etc.

Transient Flora

- These are non-pathogenic and potentially pathogenic organisms. These microorganisms do not produce disease under normal circumstances. But if normal flora is destroyed and immune system is weak then they may produce disease.

STAINING TECHNIQUES

- **Simple stain**: Methylene blue
- **Negative stain**: Negative stain produces uniform colored background against which uncolored organism strands out, e.g., India ink preparation.
- **Impregnation stains**: Cells and structures that are too thin to be visualized by the light microscope can be rendered visible by impregnation of silver on their surface.

Nursing Knowledge Tree
An initiative by CBS Nursing Division

"A good laugh and a long sleep are the best cures in the doctor's book."
—Irish Proverb



MULTIPLE CHOICE QUESTIONS
(Including Explained and Practice Questions)

INTRODUCTION AND HISTORICAL PERSPECTIVES

1. Which of the following pioneers of Microbiology is credited with the discovery of microorganisms using high quality magnifying lenses (early microscopes)? *(Safdarjung NO 2018)*

a. Antonie van Leeuwenhoek
b. Louis Pasteur
c. Robert Hooke
d. Robert Koch



Explanation: Antonie Philips van Leeuwenhoek discovered microorganisms. He used a simple single lens device with good magnification. By using magnifying lenses, he discovered micro-organisms and also known as Father of Microbiology and therefore, known as the first microbiologist. He discovered protozoa and also improved the microscope.

2. The vaccination was first performed by: *(Banaras HU 2015)*

a. Jonas Salk
b. Edward Jenner
c. Louis Pasteur
d. Alexander Fleming

3. Father of antiseptic surgery is:

a. Louis Pasteur
b. Robert Koch
c. Antonie van Leeuwenhoek
d. Joseph Lister

4. Father of modern microbiology is:

a. Robert Koch
b. Edward Jenner
c. Louis Pasteur
d. Joseph Lister

5. Which among the following is a contribution by Louis Pasteur in the field of microbiology?

a. Techniques of Pasteurization
b. Process of Fermentation
c. Rabies, cholera and anthrax vaccine
d. All of the above

6. Who is known as "Father of Bacteriology"?

a. Robert Koch
b. Joseph Lister
c. Paul Ehrlich
d. Antony van Leeuwenhoek

7. The main difference between Prokaryotic and Eukaryotic cell is absence of:

a. True nucleus
b. Genetic material
c. Plasma membrane
d. Flagella

8. The discovery that led to the development of first antibiotic was made by:

a. Robert Koch
b. Alexander Fleming
c. Joseph Lister
d. Antonie van Leeuwenhoek

9. Who accidently discovered fungus Penicillium that produces a substance which destroys staphylococci? *(AIIMS BPL NO 2018)*

a. Alexander Domagk
b. Eduard Buchner
c. Karl Popper
d. Alexander Fleming

10. Penicillin was discovered by:

a. Robert Koch
b. Alexander Fleming
c. Joseph Lister
d. Antonie van Leeuwenhoek

11. Life cycle of malarial parasite was first described by: *(RPSC NG-II Exam. 2007)*

a. Joseph Lister
b. Alexander Fleming
c. Robert Koch
d. Ronald Ross

12. Germ theory was proposed by:

a. Pasteur
b. Koch
c. Landsteiner
d. Lister

13. Identify correct statement regarding Robert Koch:

a. He is known as father of bacteriology
b. The causative organism of cholera, Vibrio cholerae was identified by him
c. He discovered hypersensitivity phenomenon
d. All of the above

CLASSIFICATION OF BACTERIA

14. Depending upon their oxygen requirement and metabolism Vibrio cholerae species is: *(Safdarjung NO 2018)*

a. Obligate aerobe
b. Facultative anaerobe
c. Obligate anaerobe
d. Microaerophilic

Explanation: Vibrio cholerae is aerobe and facultative anaerobe. Facultative anaerobe is organism which forms ATP by aerobic respiration in presence of oxygen, but is capable of switching to fermentation or anaerobic respiration in absence of oxygen.

15. All of the following occur in the stationary phase of bacterial growth curve; except: *(Safdarjung NO 2018)*

a. Cells show uniform and regular staining
b. Cells show presence of intracellular storage granules
c. Spores are seen
d. Exotoxins are formed

Explanation: In the stationary phase, the bacteria may turn Gram negative from Gram positive. All other statements regarding stationary phase of bacterial growth are true.

16. Which of the following is the unit of measurement in bacteriology? *(AIIMS BPL NO 2018)*

a. Joule
b. Newton
c. Micron
d. Pascal

Explanation: 1 micron = one thousandth of a millimeter. It is the unit used in bacteriology.

Ans.

1. a
2. b
3. d
4. c
5. d
6. a
7. a
8. b
9. d
10. b
11. d
12. a
13. d
14. b
15. a
16. c

Nursing Knowledge Hub
An initiative by CBS Nursing Division

17. A cluster of polar flagella is called: *(Safdarjung NO 2018)*

a. Lophotrichous b. Amphitrichous
c. Monotrichous d. Peritrichous

Explanation:

- **Lophotrichous:** The flagella are present in the form of cluster at one pole.
- **Amphitrichous:** When a single or clusters of flagella are present at both ends.
- **Monotrichous:** When a single polar flagellum is present on a bacterium.
- **Peritrichous:** When flagella are lateral and surround whole surface of bacteria.
- **Atrichous:** No flagella

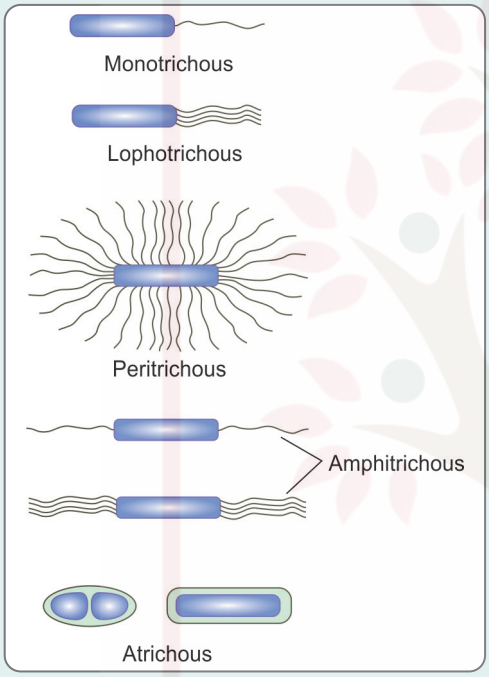


Figure: Types of flagellar arrangement in bacteria

18. Nutritional dependent bacteria are called: *(AIIMS BPL NO 2018)*

a. Heterotrophs b. Autotrophs
c. Chemotrophs d. Phototrophs

Explanation: Heterotrophs do not make their own food so depend on other sources of energy.

Autotrophs make their own food. Chemotrophs use chemicals to prepare their food. Phototrophs use photosynthetic pigments to prepare food.

19. A food item commonly associated with Bacillus cereus food poisoning is: *(AIIMS-BBS SNO 2019, ESIC 2019)*

a. Honey b. Green beans
c. Baked potato d. Fried rice

Explanation: Bacillus cereus is a toxin-producing bacterium that is one of the most common causes of food poisoning, also called "fried rice syndrome". The bacteria are contacted from fried rice dishes that have been kept at room temperature for hours.

20. The division of bacterial cells and the exponential increase in their number are indicative of which phase? *(AIIMS BPL NO 2018)*

a. Lag phase b. Stationary phase
c. Phase of decline d. Logarithmic phase

Explanation: Logarithmic phase, also known as exponential phase, is a period described by cell doubling. The number of new bacteria appearing per unit time is proportional to the present population.

21. Example of acid-fast bacilli? *(RRB Feb 2012)*

a. E. coli b. Mycobacterium
c. Clostridium d. None of these

22. Mycobacterium leprae is also known as:

a. Golden bacilli b. Koch's bacillus
c. Magical bacilli d. Hansen's bacilli

23. Drug of choice to treat leprosy is:

a. Rifampicin b. Acyclovir
c. Zidovudine d. Dapsone

24. Mycobacterium tuberculosis is also known as:

a. Golden bacilli b. Koch's bacillus
c. Magical bacilli d. Hansen's bacilli

25. Coma shaped bacteria are known as:

a. Staphylococci b. Streptococci
c. Vibrio d. Bacillus

26. Which one of the following is post streptococcal sequelae:

a. Acute rheumatic fever b. Cellulitis
c. Pharyngitis d. Impetigo

27. Acid fast staining is used to detect:

a. Mycobacterium TB b. C. tetani
c. HIV/AIDS d. Meningococci

28. Gas gangrene is caused by:

a. Clostridium tetani
b. Clostridium botulism
c. Corynebacterium diphtheriae
d. Clostridium perfringens

29. Food poison is caused by:

a. Clostridium perfringens
b. Clostridium botulism
c. Corynebacterium diphtheriae
d. Clostridium tetani

30. Incubation period for primary syphilis:

a. 1–2 days b. 1–2 weeks
c. 1 month d. 3 months

31. The causative agent of tuberculosis (TB) is: *(RPSC Nsg. Tutor 2009)*

a. Mycobacterium tuberculosis
b. Mycobacterium leprae
c. Treponema pallidum
d. Borrelia species

32. The causative agent of syphilis is:

a. Mycobacterium tuberculosis
b. Mycobacterium leprae
c. Treponema pallidum
d. Borrelia species.

33. Lyme disease is caused by:

a. Borrelia vincenti
b. Borrelia burgdorferi
c. Borrelia recurrentis
d. Leptospira interrogans



Ans.

17. a
18. a
19. d
20. d
21. b
22. d
23. d
24. b
25. c
26. a
27. a
28. d
29. b
30. c
31. a
32. c
33. b

Nursing Knowledge Tree
An Initiative by CBS Nursing Division

"Better ten times ill than one time dead."
—Yiddish



CHAPTER 14 INTRODUCTION TO COMPUTER AND NURSING INFORMATICS

SYNOPSIS

BASIC KEY TERMS

- **Access:** To gain entry to data or reading the data.
- **Analog:** Using signals or information represented by a continuously variable physical quantity, such as spatial position, voltage, etc.
- **ASCII:** American Standard Code for Information Interchange.
- **Backup:** Saving any data or information for future.
- **Bios:** Controls input and output operations.
- **Binary:** A **binary** digit, or bit, is the smallest unit of data in computing. It is represented by a 0 or a 1.
- **Bit:** The smallest unit of data in binary.
  - 8 bits = 1 byte
  - 4 bits = 1 nibble
- **Byte**: Byte is a group of binary digits or bits (usually eight) operated on a single unit. A byte is considered a unit of a memory size.

8 bits	=	1 byte
1024 Bytes	=	1 kilobyte (KB)
1024 KB	=	1 Megabyte (MB)
1024 MB	=	1 Gigabyte (GB)
1024 GB	=	1 Terabyte (TB)
1000 TB	=	1 Petabyte

- **Cache:** It is a hardware or software component that temporarily stores data so future requests for that data can be served faster.
- **CD ROM** (Compact Disk Read Only Memory): From CD ROM, the data can only be read but not edited, manipulated, or deleted.
- **Chip:** Chip is a short form for 'microchip'. It is a small piece of semiconducting material implanted with an integrated circuit.
- **Code:** Language expressed or understood by the computer.
- **DOS (Disk Operating System):** It is a command-based operating system that runs from a hard disk drive. Most commonly refers to MS-DOS (Microsoft Disk Operating System).

HISTORY OF COMPUTERS

- **Charles Babbage** is considered the "Father of the Computer". He originated the concept of a programmable computer (between 1833 and 1871).
- **Microprocessor** was invented by **Ted Hoff, Stanley Mazor and Federico Faggin** (at Intel Inc) in **1970**.
- **Microcomputer** was invented by **H. Edward Roberts in 1975**.

GENERATIONS OF COMPUTERS

Refer to Table 1 to know about various Computer Generation, Period, Features and Examples:

TABLE **1:** **Computer generation, period, features and examples**

Generation	Period	Features	Examples
First generation	1940–1955	**Vacuum tubes** and **magnetic tapes** • Slow in speed • Very huge in size • Limited storage size • Punched cards were used to input the data. Processing time for calculation was **milliseconds**	ENIAC, EDVAC, UNIVAC 1
Second generation	1955–1964	• Used **Transistor** for electronic circuitry. Large in size, relatively slow and expensive • Needed air conditioned room as they got heated up very quickly • Processing time was **microseconds**	IBM, 1401, RCA501, Honeywell 200, etc.
Third Generation	1964–1975	• Used **integrated circuits (ICs)** • Keyboards and monitors were invented for input and output • Operating system (OS) was designed. • PASCAL (high level language) was developed. • Processing time was **nanoseconds**	IBM 360 series and 370 series

Contd...

B

SECTION

Previous Year Papers



1. AIIMS Mangalagiri Tutor/Clinical Instructor, August 2022
2. AIIMS Mangalagiri (Lecturer) 2022
3. AIIMS Mangalagiri (Professor cum Principal) 2022
4. RAK MSc Nursing 2022
5. Chhattisgarh MSc Nursing 2022 (Recall)
6. AIIMS MSc Nursing 2022
7. West Bengal University of Health Sciences MSc Nursing 2022
8. West Bengal University of Health Sciences MSc Nursing 2021
9. Rajasthan University of Health Sciences MSc Nursing 2021
10. North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences MSc Nursing 2021
11. Hemwati Nandan Bahuguna Uttarakhand Medical Education University MSc Nursing 2021
12. Rajasthan University of Health Sciences MSc Nursing 2019
13. Rajasthan University of Health Sciences MSc Nursing 2018
14. RAK MSc Nursing 2018 *(In App)*
15. Rajasthan University of Health Sciences MSc Nursing 2017 *(In App)*
16. RAK MSc Nursing 2017 *(In App)*
17. Rajasthan University of Health Sciences MSc Nursing 2016 *(In App)*
18. Rajasthan University of Health Sciences MSc Nursing 2015 *(In App)*
19. Rajasthan University of Health Sciences MSc Nursing 2014 *(In App)*

Nursing Knowledge Hub
An Initiative by CBS Nursing Division



Download the app
Nursing Next Live
The Next Level of Nursing Education

Get
PREVIOUS YEAR PAPERS *with Rationale*
Practice/Review Mode in **Plan MSc (FREE)**
for Limited Time Period

"Sometimes the remedy is worse than the disease."

—Francis Bacon



AIIMS MANGALAGIRI TUTOR/CLINICAL INSTRUCTOR, AUGUST 2022

1. Which among the following is a Non modifiable factor of coronary heart disease?
a. Smoking b. Obesity
c. Age d. Stress

2. Which among the following is an indicator of the prevalence of contraceptive practice in the community?
a. Small family norm
b. Couple protection rate
c. Gross reproduction rate
d. General fertility rate

3. A permissive style of leadership in which the leader leaves all decision making and responsibility to the group members is called:
a. Autocratic style leadership
b. Democratic style leadership
c. Laissez faire leadership
d. Participation style leadership

4. The pharmacological drug class of Amikacin is _____.
a. Penicillin antibiotic
b. Cephalosporins antibiotic
c. Aminoglycosides antibiotic
d. Macrolides antibiotic

5. The causative organism for Whooping cough is _____.
a. Bordetella Pertussis
b. Corynebacterium Diphtheriae
c. Chlamydia Psittaci
d. Clostridium Perfringens

6. Which of the following method is used for water purification?
a. Fluoridation b. Chemical mists
c. Fumigation d. Chlorination

7. A form of social process in which two or more persons or group interact in order to prevent, reduce or eliminate conflict is called:
a. Accommodation b. Assimilation
c. Integration d. Contravention

8. A type of chart which is meant for representing organization or hierarchy of an administration is called:
a. Pictorial chart b. Flow chart
c. Tabulation chart d. Narrative chart

9. A condition which is triggered by a reaction to medications or from a viral infection is:
a. Plummer-Vinson syndrome
b. Asperger's syndrome
c. Stevens-Johnson syndrome
d. Tourette's syndrome

10. Marked softening of the cervix during pregnancy is called:
a. Chadwick's sign b. Goodell's sign
c. Hegar's sign d. Osiander's sign

11. The stage pertaining to the adolescents according to the theory of psychosexual development is:
a. Anal stage b. Phallic stage
c. Latency stage d. Genital stage

12. Which among the following is an Antineoplastic drug?
a. Ciprofloxacin b. Cisplatin
c. Clofibrate d. Clomiphene

13. The range of motion which involves the movement of extremity away from the midline of the body is called:
a. Dorsiflexion b. Plantar flexion
c. Abduction d. Adduction

14. A factor which affects the external validity of the research findings, when a treatment is new, subjects and the researchers might behave in different ways is called:
a. Hawthorne effect b. Experimental effect
c. Reactive effect of Pretest d. Novelty effect

15. Indomethacin is an example of:
a. Aminoglycosides b. Antiemetic
c. Bronchodilator d. NSAID

16. The pyloric canal is related to:
a. Spleen b. Stomach
c. Spinal cord d. Scrotum

17. A step in lesson planning where in the teacher asks suitable, stimulating and pivotal questions to the students related to the topic is called:
a. Presentation b. Application
c. Generalization d. Recapitulation

18. A type of organelle of the cell which is responsible for the natural defense of the body is _____.
a. Ribosomes b. Mitochondria
c. Lysosomes d. Golgi complex

19. Special marriage act was passed in the year:
a. 1950 b. 1954
c. 1956 d. 1960

20. Which among the following is a Non probability sampling technique?
a. Simple random sampling
b. Stratified random sampling
c. Cluster sampling
d. Snow ball sampling

21. During palpation, local tenderness which is elicited at Mc Burney's point is a characteristic feature of:
a. Pancreatitis b. Peptic ulcer
c. Diverticulitis d. Appendicitis

22. The delusional belief that others, ourself or the world do not exist is called:
a. Delusion of infidelity b. Delusion of grandeur
c. Nihilistic delusion d. Mood incongruent delusion



Ans.

1. c
2. b
3. c
4. c
5. a
6. d
7. a
8. b
9. c
10. b
11. d
12. b
13. c
14. d
15. d
16. b
17. d
18. c
19. b
20. d
21. d
22. c

Nursing Knowledge Trend
Initiative by CBS Nursing Division

"He who has health has hope; and to he who has hope has everything."
— Arab Proverb



RAJASTHAN UNIVERSITY OF HEALTH SCIENCES
MSc NURSING 2019

1. The vaginal pH in reproductive period is:
a. 3 to 4 b. 4 to 5
c. 5 to 6 d. 6 to 7

2. Life span of RBC is:
a. 90 days b. 100 days
c. 110 days d. 120 days

3. The strongest and largest bone of the face is:
a. Maxilla bone b. Frontal bone
c. Mandible bone d. Occipital bone

4. Which of these nerves passes through the foramen magnum?
a. Spinal nerve b. Vagus
c. Accessory d. Hypoglossal

5. The epithelial tissue which lines the urinary bladder is:
a. Columnar b. Stratified
c. Squamous d. Transitional

6. Which hormone is essential for milk production?
a. Thyroid b. ADH
c. Oxytocin d. Prolactin

7. Among the following which is not a function of insulin?
a. Decreasing glycogenolysis
b. Gluconeogenesis
c. Lipogenesis
d. Glycogenesis

8. Sperms are produced by:
a. Prostate b. Seminiferous tubules
c. Epididymis d. Penis

9. Which structure of the eye is helpful in changing the thickness of lens?
a. Sclera b. Cornea
c. Ciliary body d. Iris

10. The second heart sound 'dup' is heard due to:
a. Opening of the aortic and pulmonary valves
b. Closure of the aortic and pulmonary valves
c. Opening of the atrioventricular valves
d. Closure of the atrioventricular valves

11. The organism responsible for filaria:
a. *Entamoeba histolytica* b. *Anopheles mosquito*
c. *Wuchereria bancrofti* d. *Taenia saginata*

12. The polio virus enters in the body by:
a. Ingestion b. Sexual contact
c. Inoculation d. All of these

13. Complete destruction of all microorganisms is affected by the use of:
a. Antiseptic b. Sterilant
c. Disinfectant d. Detergent

14. Among the following, which is a gram-positive bacillus?
a. Corynebacterium b. Proteus
c. Pseudomonas d. *E. coli*

15. Endoscope is sterilized by:
a. Autoclaving b. U.V. rays
c. 2% phenol d. 2% glutaraldehyde

16. Smith's test is used to detect:
a. Bile pigment b. Acetone
c. Bile test d. Albumin

17. The term gavage indicates:
a. Administration of a liquid feeding into the stomach
b. Visual examination of the stomach
c. Irrigation of the stomach with a solution
d. A surgical opening through the abdomen to the stomach

18. Prolong suctioning of the tracheostomy may cause:
a. Myocarditis and endocarditis
b. Hypoxia and cardiac arrest
c. Nausea and vomiting
d. Anorexia

19. In hospital, noninfectious wastes should be discarded in:
a. Red colored bag b. Blue colored bag
c. Black colored bag d. Yellow colored bag

20. Low level of oxygen in the blood is known as:
a. Cyanosis b. Anoxemia
c. Hypoxia d. Hypoxemia

21. Hyperpyrexia is:
a. 107°F b. 105°F
c. 103°F d. 101°F

22. Infusion of 500 mL normal saline over 6 hours requires how many drops per minute when the drop factor is 15 drops per minute?
a. 23 drops/min b. 21 drops/min
c. 17 drops/min d. 15 drops/min

23. Color of nitrous oxide cylinder is:
a. Red
b. French blue
c. Black with white shoulders
d. Black

24. A Foley's catheter operates by the principal of:
a. Osmosis b. Diffusion
c. Gravity d. None of this

25. Ringer's lactate is contraindicated in:
a. Diarrhea b. Lactic acidosis
c. Burns d. Hypovolemia

26. Gradual decrease of the body's temperature is known as:
a. Livor mortis b. Algor mortis
c. Rigor mortis d. None of the above

27. Atropine sulfate acts as a:
a. Antihypertensive agent b. Anticonvulsant drug
c. Miotic drug d. Mydriatics drug

28. During hemodialysis, which of the following drug is used to prevent blood clotting?
a. Protamine b. Heparin
c. Warfarin d. Aspirin

29. Which of the following is not excreted in breast milk?
a. Zinc b. Phosphorus
c. Iron d. Calcium



Ans.

1. b
2. d
3. c
4. c
5. d
6. d
7. b
8. b
9. c
10. b
11. c
12. a
13. c
14. a
15. d
16. a
17. a
18. b
19. c
20. d
21. b
22. b
23. b
24. c
25. b
26. b
27. d
28. b
29. c

Sharing Knowledge Free
An Initiative by CBS NURSING DIVISION

"Ill-health of body or of mind, is defeat. Health alone is victory."
—Thomas Carlyle



RAJASTHAN UNIVERSITY OF HEALTH SCIENCES
MSc NURSING 2018

1. Pushing fluid out of the bloodstream determining overall fluid movement across the capillary wall is called:
a. Hydrostatic pressure b. Osmotic pressure
c. Diffusion d. Vasoconstriction

2. The valve prevents the backflow of blood into the right ventricle when the ventricular valve muscle relaxes:
a. Tricuspid valve b. Bicuspid valve
c. Pulmonary valve d. Pulmonary artery

3. Which of the following is not the true regarding the GI Tract regulation?
a. The myenteric plexus regulates GI tract motility
b. The submucosal plexus regulates GI Tract secretion
c. The neurons of the enteric nervous system (ENS) cannot function independently and are regulated by autonomic nervous system.
d. Parasympathetic fibers increase the activity of ENS neurons while sympathetic neurons inhibit them

4. Which condition is responsible for inspiration?
a. Dilatation of intercostals muscles
b. Contraction of intercostals muscles
c. Contraction of diaphragm
d. Both (Contraction of intercostals muscles) and (Contraction of diaphragm)

5. "Primary immune response"- the correct statement is:
a. Involves IgG
b. Antibody producing cells-memory B Cell
c. No lag periods
d. Slow and sluggish

6. "Klebs Loeffler bacillus" is the name of:
a. Streptococci
b. *Salmonella typhi*
c. *Corynebacterium diphtheriae*
d. Meningococci

7. Which is the correct one "theory of emotion"?
a. Canon-bard theory b. McClelland's theory
c. Freud's theory d. Erikson's theory

8. "Profound mentally retarded"-when the IQ Score is:
a. 35 - 49 b. 50 - 70
c. 20 - 34 d. Below 20

9. The 'ectomorphic personality body type"-which is correct?
a. Large, viscera, soft body
b. Socialize
c. Tall, thin and fragile
d. Strong muscular

10. Who has classified Type A and Type B personality?
a. Allport b. Hens Eyesanch
c. Carl Jung d. Sheldon

11. Thinking is also referred as:
a. Motivation b. Cognition
c. Emotions d. Perceptions

12. In a situation, in which a person is faced with demands from two or more roles:
a. Role distance b. Role playing
c. Role conflict d. Role-set

13. The term-'Cultural diffusion' -which is the correct one?
a. Spreading of cultural attributes through different cultural groups
b. Immigrants comes to accept the culture
c. Socialization
d. William F Ogburn

14. The seat of glycolysis and pentose phosphate pathway is:
a. Mitochondria b. Endoplasmic reticulum
c. Cytosol d. Golgi bodies

15. Glycosuria occurs when the venous blood glucose exceeds:
a. 140 – 150 mg/dL b. 150 – 160 mg/dL
c. 160 – 170 mg/dL d. 170 – 180 mg/dL

16. Tissues in histopathology are carried out in:
a. 10% buffered formation b. Normal saline
c. 2% glutaraldehyde d. Camay's fixative

17. Serial HCG test is used to diagnose the following condition:
a. Ca cervix b. Ca vagina
c. Ca endometrium d. Choriocarcinoma

18. Jaggery is rich in:
a. Calcium b. Iron
c. Folic acid d. Vitamin C

19. "Beriberi " syndrome is caused in which vitamin deficiency?
a. Vitamin B_5 b. Vitamin B_6
c. Vitamin B_1 d. Vitamin B_2

20. Endemic fluorosis occurs when fluorine present in water:
a. 1 – 3 mg/liter b. 3 – 5 mg/liter
c. 5 – 7 mg/liter d. 7 – 9 mg/liter

21. How much extra kcals of energy is required in a lactating mother from 0 to 6 months of nursing the child?
a. + 350 kcal b. + 450 kcal
c. + 550 kcal d. + 650 kcal

22. One of the following is not the typical feature of kwashiorkor?
a. Muscle wasting
b. Severe loss of subcutaneous fat
c. Moon face
d. Usually, good appetite

23. Which among the following data will give more accurate information regarding an end stage renal disease patient's fluid status?
a. Daily weight checking of the patient
b. Intake and output chart
c. Electrolyte level
d. Bowel movement

24. 1 Teaspoon =----------mL.
a. 1 b. 3
c. 5 d. 7



Ans.

1. a
2. c
3. c
4. d
5. d
6. c
7. a
8. d
9. c
10. c
11. b
12. c
13. a
14. c
15. d
16. a
17. d
18. b
19. c
20. b
21. c
22. c
23. a
24. c

Nursing Knowledge Tree
A Unit of CBS Nursing Division

TARGET HIGH™

Toppers' Choice

Nursing Next Live



Pragya Tripathi
RAK MSc Nursing
Entrance Examination 2023



Aditi Biswas
AIIMS MSc Entrance Exam
2023



Shivani Pandey
AIIMS MSc Entrance Exam
2023



Syed Ruqaya Shameem
AIIMS MSc Entrance
2023



Pooja Singh
ABVMU MSc Nursing
Entrance Examination 2023



Niharika Jana
ABVMU MSc Nursing
Entrance Examination 2023



Pankaj Yadav
Rajasthan University of
Health Sciences, Jaipur 2022



Hemant Nihaliya
AIIMS Jodhpur
2022

About the Authors



Muthuvenkatachalam Srinivasan PhD (INC Consortium), MSc Nursing (AIIMS, New Delhi), D Pharm, RN (NMBA, Australia) is currently serving as an Associate Professor at the College of Nursing, All India Institute of Medical Sciences (AIIMS), Mangalagiri, Andhra Pradesh. Previously, he held the position of Assistant Professor at the Institute of Human Behaviour and Allied Sciences (IHBAS), New Delhi. Earlier, he had served as an Associate Professor at the College of Nursing, AIIMS, New Delhi. He obtained Doctorate in Psychiatric Nursing from INC Consortium (in collaboration with RGUHS, Karnataka) in 2017. He is a Postgraduate in Psychiatric Nursing from AIIMS, New Delhi and has also completed a Diploma in Pharmacy. He is also a Registered Nurse with the Nurses and Midwifery Board of Australia. He has published numerous research papers in national and international journals of repute. He is Deputy Editor of Indian Journal of Psychiatric Nursing. He has contributed chapters to the textbooks and training manuals of Govt. of India. He is an executive body member of Indian Society of Psychiatric Nurses (ISPN). He received 'Best Researcher Award' from ISPN in the year 2016. Last but not least, the author attended IRON programme for Registered Nurses in Australia, International conferences in USA and Canada with travel grant from ICMR and conference organization.

Ambili M Venugopal MSc Pediatric Nursing (AIIMS), BSc (Hons) Nursing (AIIMS) is an aspiring scholar pursuing a PhD in Pediatric Nursing through the National Consortium. Presently, she is serving as a Tutor/Clinical Instructor at the College of Nursing, All India Institute of Medical Sciences in Mangalagiri, Andhra Pradesh, and contributing to the advancement of nursing education and practice. She is a Postgraduate in Pediatric Nursing from AIIMS, New Delhi and former Nursing Officer in AIIMS, New Delhi. She has published several research papers in reputed journals. She has secured top ranks in several competitive exams including Nursing Officer, AIIMS, Delhi, SNO, AIIMS Bhubaneswar (AIR-1), Nursing Tutor, AIIMS Kalyani (AIR-1), AIIMS Deoghar (AIR-1), AIIMS Nagpur and AIIMS Manglagiri.



CBSPD
Dedicated to Education

CBS Publishers & Distributors Pvt. Ltd.
4819/XI, Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India
E-mail: feedback@cbspd.com, **Website:** www.cbspd.com
New Delhi | Bengaluru | Chennai | Kochi | Kolkata | Lucknow | Mumbai
Hyderabad | Jharkhand | Nagpur | Patna | Pune | Uttarakhand

ISBN: 978-93-94525-81-8