

ANATOMY AND PHYSIOLOGY

Theory - Anatomy : 60

Physiology : 60

Placement : First Year

Course Description -The course is designed to assist students to acquire the knowledge of the normal structure of human body & functions. To ensure the students to understand the alternation in anatomical structure and function in disease and practice of Nursing.

Specific objectives – At the end of the course the students will be able to:

- 1) Describe the general structure and functions of the body as a whole.
- 2) Describe the general and microscopic structure and functions of each system of the body.
- 3) Explain the macroscopic and microscopic structure and functions of each organs of the body.
- 4) Understand the effects of alterations in structures and functions of as whole.
- 5) Apply the knowledge of anatomy and physiology in the practice of nursing.

Anatomy

Theory – 60 hours

(Class 40+ lab 20 hours)

UNIT	HRS	LEARNING OBJECTIVE	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
I Introduction	6 Hrs T = 5 P = 1	Describe the anatomical terms, organization of human body and structure of cell, tissues membranes and glands.	Systems • Cell & Cell division Tissues (including glands) • Regions, cavities Membranes	Lecture, Discussion Explain using charts, microscopic slides skeleton and torso. • Demonstrate cell types of tissues membranes and glands. • Journal	Short answer questions Objective type

UNIT	HRS	LEARNING OBJECTIVE	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
II Skeletal System	7 Hrs T = 4 P = 3	Classify the Principal types of bones on the basis of its shape Describe anatomical position structure and functions of bones and joints - List various abnormal conditions of bones and joints	Skeletal System Function of bones Typical bone Bone-growth-healing of fracture Skeleton – Axial, Appendicular Bones- Classification Joints – Classification Typical Synovial joint Alteration in Disease Application and implication in nursing	Lecture Discussion Explain using charts, Skeleton loose bones and joints Journal	Short answer questions, Objective type and Short notes
III Muscular System	7 Hrs T = 5 P = 2	Explain the structure and functions of principal muscles of the body. List the disorders of muscular system	Muscular tissue review Typical skeletal muscle/Principles of lever Classification- Shape, red & pale, prime mover, Antagonist, Synergist Muscle groups & movements at a joint Head, face, neck, Back, Upper Limb, Thorax, Abdominal, Pelvis, Perineum, Lower Limb Alteration in Disease Application and implication in nursing	Lecture Discussion Explain using charts, models, and films Demonstrate muscular movements Journal	Short answer questions Objective type

UNIT	HRS	LEARNING OBJECTIVE	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
IV Respiratory System	4 Hrs T = 2 P = 2	Describe the anatomical position, size, shape and structure of organs of respiratory system. Enumerate the principal muscles of respiration. List the abnormalities of respiratory system.	Trachea, lung, pleura Musculoskeletal frame Mechanism of respiration Alteration in Disease Application and implication in nursing	Lecture Discussion Explain using models, torso, charts, slides and specimens Journal.	Long answer and Short answer questions Objective Type and Short notes
V Digestive System	6 Hrs T = 4 P = 2	Describe the anatomical position, size, shape and structure of organs of digestive system List the abnormalities of digestive system.	Mouth- Tooth, mastication Salivary glands deglutition, Esophagus Stomach Intestines, Liver, Biliary Apparatus, Pancreas Peritoneum Alteration in disease Application and implication in nursing	Lecture discussion Explain using models torso, charts, slides and specimens Journal.	Long answer and Short answer questions Objective type and Short notes.
VI Cardiovascular System	6 Hrs T= 4 P =2	Describe the anatomical position, size, shape and structure of organs Explain arterial, venous and lymphatic circulation. Enumerate the	Heart & Pericardium Arterial & venous system(Systemic , Pulmonary, Hepatoportal Coronary) Lymphatic System and Lymphoid tissue Thymus Lymph node Spleen Lymph	Lecture discussion Explain using models torso, charts, slides and specimens Journal.	Long answer and Short answer questions Objective Type and Short notes

UNIT	HRS	LEARNING OBJECTIVE	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
		disorders of heart and circulatory system.	nodules		
VII Urinary System (Excretory)	5 Hrs T =3 P =2	Describe the anatomical position, size, shape and structure of organs of urinary system Explain incontinence and list the abnormalities of urinary system.	Kidney Ureter, Urinary bladder Urethra & continence Skin	Lecture Discussion Explain using models torso, charts, slides and specimens Journal.	Short answer questions Objective type and Short notes
VIII Reproductive system	3 Hrs T=2 P=1	Describe the anatomical position, size, shape and structure of male and female reproductive organs List the abnormalities male and female reproductive system.	Male reproductive Female reproductive Breast	Lecture Discussion Explain using models torso, charts, slides and specimens Journal.	Short answer questions Objective type and Short notes
IX Endocrine System	3 Hrs T= 2 P=1	Describe the anatomical position, size, shape and structure of various organs of the endocrine system. List the abnormalities of system.	Pituitary Thyroid Parathyroid & Pancreas Suprarenal	Lecture Discussion Explain using models torso, charts, slides and specimens Journal.	Short answer questions Objective type and Short notes

UNIT	HRS	LEARNING OBJECTIVE	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
X Nervous System	9 Hrs T= 7 P=2	Describe the anatomical position, size, shape and structure of various organs of the nervous system. Compare the functions of different parts of the brain. List the abnormalities of nervous system.	Cerebrum Diencephalon Brainstem & Spinal cord Cerebellum ANS & PNS Ventricles, CSF & Meninges	Lecture Discussion Explain using models torso, charts, slides and specimens Journal.	Short answer questions Objective type and Short notes
XI Sense organs	4 Hrs T= 2 P= 2	Describe the anatomical position, size, shape and structure of various sensory organs. List the abnormalities related to the sense organs.	Eye Ear Nose & tongue Skin	Lecture Discussion Explain using models torso, charts, slides and specimens Journal.	Short answer questions Objective type and Short notes

Physiology

Placement : First Year

Theory – 60 hours

(Class 50+ Lab 10 hours)

UNIT	HRS	LEARNING OBJECTIVES	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
I Cell Physiology	T=2	Describe the physiology of cell, tissues membranes and glands	Tissue-- formation and repair. Membranes and glands functions Alteration in disease Application in nursing	Lecture discussion	Short answer questions Objective type
II Blood	6Hrs T=4 P=2	Describe the physiology of blood. Demonstrate blood, cell count, coagulation, and grouping, Hb.	Composition and functions of blood. Classification of blood cells Blood groups, blood coagulation. Hemoglobin: Structure, synthesis and breakdown, variations of molecules, estimation,	Lecture discussion Explain using charts and films Demonstration of blood cell counts, coagulation, grouping, and Hemoglobin estimation. Journal	Long answer and Short answer questions Objective type
III Lymphatic & immunological system.	T=2	Describe the physiology of Lymphatic & immunological system.	Circulation of lymph. Immunity. Formation of T cells & B Cells. Types of immune response. Antigens Cytokines Antibodies,	Lecture discussion Explain using charts, and films	Short & Long Answer questions Objective type

UNIT	HRS	LEARNING OBJECTIVES	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
IV Muscular System	4Hrs T=3 P=1	Describe the neuro muscular transmission, and demonstrate muscle contraction and tone	Neuro muscular transmission. Stimulus and nerve impulse definitions and mechanisms. Physiology of muscle contraction. Alterations in disease.	Lecture discussion Explain using charts, models, slides, specimen and films Demonstration of muscle tone and contraction Journal	Short answer questions Objective type
V The Respiratory System	6Hrs T =4 P=2	Describe the Physiology and Mechanism of Respiration Demonstrate Spirometry.	Functions of Respiratory organs. Physiology of Respiration. Pulmonary ventilation, Volume Mechanics of respiration. Gaseous exchange in lungs. Carriage of Oxygen and carbon dioxide. Exchange of gases in tissues. Regulation of respiration. Alterations in disease.	Lecture discussion Explain using charts and films Demonstration in spirometry. Journal.	Long answer and Short answer questions Objective type
VI The Digestive System	T =5	Describe Physiology of Digestive system. Demonstrates BMR.	Functions of organs of digestive tract. Movements of alimentary tract. Digestion in Mouth, stomach, small intestine, large intestine. Absorption of food. Functions of liver, Gall bladder & pancreas	Lecture discussion Explain using charts and films Demonstration of BMR. Journal.	Long answers And Short Answer questions. Objective type

UNIT	HRS	LEARNING OBJECTIVES	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
VII Circulatory System	6Hrs T=4 P=2	Describe the functions of heart. Demonstrates B.P and pulse monitoring	Functions of heart, conduction, cardiac cycle, circulation-- Principles, control, factors influencing B.P and pulse Alterations in disease.	Lecture discussion Explain using charts and films Demonstrates measurement of pulse and B.P., Journal.	Long answer and Short answer questions Objective type
VIII_ The Excretory System.	T=5	Describe the Physiology of excretory system	Functions of kidneys, ureters , urinary bladder and urethra. Composition of urine. Mechanism of Urine formation. Structure & Functions of skin. Regulation of body temperature. Fluid and electrolyte balance. Alteration in disease.	Lecture discussion Explain using charts and films	Long answer And Short Answer questions Objective type
IX_ The Reproductive System	T=5	Describe the Physiology of Male & Female Reproductive System.	Spermatogenesis Oogenesis. Function of Female Reproductive Organ. Function of Breast, Placenta, Ovaries. Female sexual cycle. Introduction to Embryology. Functions of the Male Reproductive Organs, Male function in reproduction, Male fertility system. Alteration in disease.	Lecture discussion Explain using charts, Models, specimen and films	Short answer Questions Objective type

UNIT	HRS	LEARNING OBJECTIVES	CONTENTS	TEACHING LEARNING ACTIVITIES	ASSESSMENT METHODS
X_ The Endocrine System.	T=5	Describe the physiology of Endocrine Glands.	<ul style="list-style-type: none"> • Functions of pituitary ,thymus, thyroid, Parathyroid (Calcium Metabolism) Pancreas, Supra renal Glands. • Alteration in disease 	<ul style="list-style-type: none"> • Lecture discussion Explain Using charts And Films 	Short answer questions. Objective type.
XI Nervous System	8Hrs T=7 P=1	Describe the physiology of reflexes, brain, cranial and spinal nerves. Demonstrate reflex action .	<ul style="list-style-type: none"> •Functions of neurologia and neurons •Functions of brain, spinal cord, and cranial and spinal nerves. •Cerebrospinal fluid---composition, circulation and function. •Reflex arc, reflex action and reflexes Muscle tone and posture •Autonomic functions ---Pain: somatic, visceral and referred •Autonomic learning and biofeedback • Alterations in disease 	Lecture discussion Explain using charts, models, and films Demonstrates nerve stimulus, reflex action, and reflexes.	Short answer questions Objective type
XII_ The Sensory Organs.	6Hrs T=4 P=2	Describe the physiology of sensory organs.	<ul style="list-style-type: none"> • Functions of skin, eye, ear, nose & tongue. • Alterations in disease 	Lecture discussion Explain using charts and film	Short answer questions. Objective type

BIBLIOGRAPHY

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5. Tortora, (2003), "Principles of Anatomy & Physiology," 10th ed., Wiley inter.
6. Chaurasia, B.D. (2004), "Human Anatomy", 4th ed., CBS publishers.
7. Sembulingam, "Essentials of Medical Physiology," 3rd Edition 2004 J.P. Publications. 10.T Clenister and Jean Rosy (1974). "Anatomy and Physiology for Nurses" 2nd Edition, William Hernmarni Medical BK. Ltd.
8. Ganong. F. William, "Review of Medical Physiology", 15th Edition, Prentice Hall International Inc., Appleton and Lange.
9. Guyton and Hall, "Textbook of Medical Physiology," 9th Edition, A Prism2. Indian Edn. Pvt. Ltd.

Evaluation Scheme

Subject Anatomy & Physiology	Assessment			
	Hours	Internal	External	Total
Theory	3	25	75	100

Details as follows:

Internal Assessment:

Theory:	15 Marks
Assignment (Writing Journal):	10 Marks
Total:	25 Marks

(Out of 25 Marks to be send to the University)

	Anatomy	Physiology	Total Marks	Average out of
Mid-Term	25	25	50	--
Prelim	37	38	75	--
Total	--	--	125	15
Assignment (Writing Journal)	25	25	50	10
Total	--	--	--	25 Marks

(125 Marks from mid-term & prelim (Theory) to be converted into 15 Marks and 50 Marks from Assignment (Writing Journal) to be converted into 10 Marks)

External Assessment: **75 Marks**
(University Examination)

Section A: Anatomy:	37 Marks
Section B: Physiology:	38 Marks
Total:	75 Marks

GUIDE LINE FOR JOURNAL

ANATOMY

	Topics
1	Abdominal Region
2	The Cell
3	The Tissues – Epithelial, muscular, nervous and connective
4	Bones of appendicular skeleton – Scapula, humerus, radius, ulna
5	Bones of the axial skeleton – Hip, Femur, ankle and foot
6	The Joints
7	Principal Muscles – Deltoid, Biceps, triceps, respiratory, abdominal and gluteal
8	Respiratory System – Tracheo-broncheal tree, lungs
9	Digestive System – Stomach, Biliary tract, Pancreas, Liver (microscopic) Large intestine.
10	Circulatory System – Structure of heart, aorta and its branches, venous branches, lymph node.
11	Urinary System – gross and microscopic structure of kidney, KUB
12	Reproductive Male – testes with spermatic cord Female – uterus and its support
13	Endocrine system – Pituitary gland
14	Nervous system – Brain, ventricles, areas of cerebrum
15	Sense organs – Skin, Eye, Ear.

EVALUATION CRITERIA FOR JOURNAL: 25 marks

SN	Item	Maximum Marks	Mark allotted
1	Description		
	• Organization	4	
	• Adequacy of content	5	
	• Related	4	
2	Illustration		
	• Adequacy	4	
	• Neatness	4	
	• Presentation	4	

GUIDE LINE FOR JOURNAL

PHYSIOLOGY

SN	Topics
1	Properties of cardiac and skeletal Muscles
2	Reflex arc
3	Blood – Bleeding time, clotting time, Hb estimation, Blood Group, RBC, WBC
4	Heart Sound
5	Cardiac Cycle
6	Action Potentials, ECG
7	Spirometry
8	BMR
9	Menstrual Cycle
10	Cranial Nerves

EVALUATION CRITERIA FOR JOURNAL: 25 marks

SN	Item	Maximum Marks	Mark allotted
1	Description		
	• Organization	4	
	• Adequacy of content	5	
	• Related	4	
2	Illustration		
	• Adequacy	4	
	• Neatness	4	
	• Presentation	4	

