Diploma in Cardiac Care Technology

Course duration 2 years +6 month internship

Eligibility

* Interested candidate must have passed 10+2 with physics chemistry biology or math with 40% marks by state board or any recognized board/ university.

First year 1st Paper

1st year (1st paper)

Anatomy & Physiology

Introduction to Anatomy

Basic Anatomical Terminology

Astrology- Upper Limb- clavier, scapula, humorous, radius, ulna
Lower Limb- femur, hipbone, sacrum, tibia, fibula Vertebral column
Thorax- Intercostals space, pleura, bony thoracic cage, ribs sternum & thoracic vertebrae
Lungs- Trachea, bronchial tree
Heart- Surface anatomy of heart, chambers of the heart, valves of the heart, major blood vessels of heart, pericardium, coronary arteries.
Skeleton-muscular system-Muscles of thorax, muscles of upper limb (arm & fore arm) Flexor and Extensor Group of muscles (origin, insertion, action)
Excretory system- Kidneys, urethras, bladder
Physiology

1) **The cell:**
   (i) Cell Structure and functions of the varies organelles.
   (ii) Endocytosis and exocytose
   (iii) Acid base balance and disturbances of acid base balances (alkalosis, Acidosis)
2) **The Blood:**
   (i) Composition of blood, functions of the blood and plasma proteins, classification and protein.
   (ii) Pathological and Physiological variation of the RBC.
   (iii) Function of Hemoglobin
   (iv) Erythrocyte Sedimentation Rate.
   (v) Detailed description about WBC-Total count (T.C) Differential count (DC) And function.
   (vi) Platelet- Formation and normal level and functions
   (vii) Blood groups and RH Factor

3) **Cardio-Vascular System:**
   (i) Physiology of the heart
   (ii) Heart sounds
   (iii) Cardiac cycle, cardiac output.
   (iv) Auscultator areas.
   (v) Arterial pressures, blood pressure
   (vi) Hypertension
   (vii) Electro cardiogram (ECG)

4) **Respiratory system**:

(i) Respiratory movements.

(ii) Definitions and Normal values of Lung volumes and Lung capacities.

5) **Excretory system:**

(i) Normal Urinary output

(ii) Maturation

(iii) Renal function taste, renal disorders.

6) **Reproductive system:**

(i) Formation of semen and spermatogenesis.

(ii) Brief account of menstrual cycle.

7) **Central Nervous system:**

(i) Function of CSF.

8) **Endocrine system:**

Functions of the pituitary, thyroid, parathyroid, adrenal and pancreatic Hormones

9) **Digestive system (for the students of diploma in scope support Technology)**

(i) Physiological Anatomy of the GIT.

(ii) Food Digestion in the mouth, stomach, intestine

(iii) Absorption of foods

(iv) Role of bile in the digestion.

Practical

Mannequins to be provided for teaching

Astrology- bones identification (right and left side) and prominent features and muscle attachment of the bone, clavicle, scapula, radius, ulna, humorous, femur, hip bone, sacrum tibia, and fibula.

Surface Anatomy,

Radiology X-ray Chest PA view

1) The compound Microscope
2) Determination of ESR-By wintergreen's method
3) Determination of Blood Groups.
4) Measurement of human blood pressure.
5) Examination of Respiratory system to count respiratory rate and measure inspiration and respiration

Biochemistry (2nd paper)

Carbohydrates:

Glucose and Glycogen Metabolism

Proteins:

Classification of lipids and functions

Enzymes:

Definition- Nomenclature- Classification- Factors affecting enzyme activity- active site- Coenzyme- Enzyme Inhibition- Units of enzyme- Isoeznzymes- Enzyme pattern in diseases.

Vitamins & Minerals:

Fat soluble vitamins (A, D, E, K) - Water soluble vitamins- B-complex vitamins- principal elements (Calcium, Phosphorus, Magnesium, sodium, Potassium, Chlorine and sculpture) – trace elements – Calorific value of foods- Basal metabolic rate (BMR)- respiratory quotient (RQ) Specific dynamic action (SDA) – Balanced diet- Maras us- Kwasoirkar

Acids and bases:

Definition, ph, Henderson- Hasselbalch equation, Buffers, Indicators, Normality, Molarities, Modality

Biochemistry syllabus for partials

1) Benedict's test
2) Heat coagulation tests

Pathology (3rd paper)

1. Cellular adaptation, cell injury & cell death.

Introduction to Pathology
Overview: Cellular response to stress and noxious stimuli.
Cellular adaptations of growth and differentiation
Overview of cell injury and cell death
Causes of cell injury
Reversible and irreversible cell injury
Examples of cell injury and necrosis

2. Inflammation.

General features of inflammation
Historical highlights
Acute inflammation
Chemical mediators of inflammation
Outcomes of acute inflammation
Summary of acute inflammation
Chronic inflammation

3. **Immunity disorders**.

General features of the immune system
Disorders of the immune system

4. Infectious diseases.

General principles of microbial pathogenesis
Viral infections
Bacterial infections- Rheumatic heart disease

Fungal infections

Parasitic infections

5. Neoplasia.

Definitions

Nomenclature

Biology of tumor growth benign and malignant neoplasm's

Epidemiology

Carcinogenic agents and their cellular interactions

Clinical features of tumors

6. Environmental and nutritional disorders.

Environmental and disease

Common environmental and occupational exposures

Nutrition and disease

Coronary artery disease

2nd year (1st paper)

Anatomy & Physiology

Gastrointestinal tract

Upper gastrointestinal tract

Lower gastrointestinal tract

Small bowel

Hepatobiliary pancreatic

Peritoneal cavity

Orthopedics

Anatomy of joints

Cardiothoracic

Anatomy of tracheobronchial tree

ENT

Oral cavity

Nasal cavity & sinuses

Base of skull

Gynaecology

Female reproductive organs

Pelvic anatomy

Urology

Anatomy of male & female urogenital system

Related anatomy

Anatomy of cardiovascular system

Anatomy of respiratory system

Gastrointestinal tract

Gastrointestinal secretions

Digestive physiology & absorption

Physiology of belier secretion

Peritoneal fluid & chyle

Orthopedic

Joint mechanics

Synovial fluid

Cardiothoracic

Lung mechanics

Respiratory movements

Gas exchange

Bronchial ravage

ENT

Physiology of upper airway & strider

Management of tracheotomy tubes

Gynaecology

Reproductive physiology

Urology

Glomerular filtration

Tubular exchange

Urine osmololity

Obstructive urotathy

Anesthesiology

Basics in mechanical ventilation

End tracheal intubation

Intravenous access/ NG tube insertion

Documentation of vital parameters

Pathology & Microbiology (2nd paper)

Benign & malignant diseases of gastrointestinal system

Pathological aspects of joint disorders

Diseases of oral cavity & sinuses

Diseases of female reproductive organs

Diseases of genitourinary system

Diseases of cardiothoracic system

Clinical microbiology

Infection control

Sterilization techniques

Disposal of infected wastes

Universal precautions

Specific infections

Hepatitis A

Hepatitis B

Hepatitis C

HIV-AIDS

Tuberculosis

Nosocomial infections

Pharmacology, Biochemistry & Path physiology

(3rd paper)

Drugs used in anesthesiology
Antibiotics
Prokinrtics
Antacids
Life saving dregs
Bowel preparation
Basic biochemical investigations
Liver function tests
Renal function tests
Coagulation profile
Hemodynamic change deranges pneumoperitoneum
Path physiology of pneumoperitoneum
Complications of endoscopy
Complications of ERCP
Complications of Arthroscopy
Complications of Sinus copy
Complications of Hysteroscopy/colposcopy
Preoperative check for scopes
Intraoperative care
Cardiopulmonary resuscitation
Specialty training

Department	Duration
Medical gastroenterology	2 months
Surgical gastroenterology	2 months
Orthopedics	1 months
Anesthesiology	1 months
Urology	1 months
Gynaecology	1 months
Thoracic medicine	15 days
Cardiothoracic surgery	15 days
Neurosurgery	15 days
ENT	15 days