DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY 1ST YEAR

Anatomy & Physiology

Anatomy-Grass Anatomy of the following:
Human body & anatomical terms & cell structure.
.**Muscular**-skeleton systems, skull, vertebral column, pelvic bones, extremities, rib cage.
Respiratory systems- nose, larynx, trachea, lungs and thoracic cavity.
Cardio-vascular system-Heart, major arteries & veins, renal & portal system.
Alimentary system- mouth, pharynx, esophagus, stomach, small intestine & large intestine, spleen, liver, gall bladder, pancreas.
Brain, spinal cord, menigeal coverings.
Sensory organs- skin, eyes, ears, tongue, nose.
Urinary system-kidney, urethra, urinary bladder-urethra.
Reproductive system- male & female.
Physiology- Grass physiology of the following system:
G.I.T system
Urinary system- kidney, formation of urine and role in electrolyte balance.
Muscular system- structure & function of cardiac muscles, skeletal muscle, involuntary muscles.
Cardio Vascular system-cardiac output, circulatory system, BP.
Respiratory system- Pulmonary system, exchange of gases, airway resistance.

Central nervous system- conduction of nerve impulse, peripheral, peripheral and automatic nervous system.

Endocrine glands- broad idea about metabolic processes, fluid and electrolyte balance, pituitary, thyroid, parathyroid and adrenal gland.

Maternal and neonatal physiology.

Organs of special senses-skin, ear, eye, tongue & nose.

Pressure loss due to abrupt change in bore of tube, principal of flow meters and its types Bernoulli Principle & its application.

MICROBIOLOGY

Introduction of brief history of Microbiology

Historical Aspect
Relationship of Micro-organism to men
Micro-organism in Disease and Health
Requirement and uses of common Laboratory Equipments
Incubator, Hot Air Oven, Water Bath
Anaerobic Jar, Centrifuge, Autoclave
Microscope
Glassware – Discription of Glassware, its use, handling and care
Sterilization:
Definition
Classification and General Principal of Sterlization
Autoclave – its structure, functioning, control and indicator
Definition
Types
Mode of Action
Uses
Collection, Transportation and processing of clinical samples for Microbiological Investigations

Bacteiology

Definition
Bacteria – General characteristics of Bacteria
Classification and morphology of Bacteria
Structure of Cell, Capsule, Flagella, and Spore
Growth of Bacteria
Nutrition of Bacteria

Virology:

Definition
General Introduction of Virus
Physiochemical characteristic of Viruses
Diseases caused by different Virus and mode of infection

Parasitology :

Definition
General Characteristics of Parasite
Classification of Parasite
Mode of transmission

Fungus:

Definition
Structure
Classification

Staining – Type of Staining, Principal, Procedure and Interpretation
Demonstration of washing of instruments

BIOCHEMISTRY

CONTENTS –Introduction of Biochemistry
Elementary knowledge of inorganic chemistry: - Atomic weight, molecular weight, equivalent weight, acid, bases.
Definition and preparation of solutions: Percent solution, Molar solution, Normal Solution and Buffer Solutione etc.
Definition and preparation of Regent
Unit of measurement
Elementary knowledge of organic chemistry
Organic compounds
Aliphatic and Aromatic
Alcohols, Aldehydes, Ketones, Amines, Esters, Phenol etc
Ph indicators : pH paper, universal and other indicators, pH measurement : different methods.
Practical100 MARKS
Introduction and usage of Glassware and Instruments
Glassware :Composition of Glass
General Glass wares
Instruments :Balance
Hot Plate and Magnetic stirrer
Centrifuges
Incubators
Constant temperature bath
Colorimeter : Principal, Function
Photometer
Flame Photometry
Aim and Scope of Biochemistry
Collection and Recording of Biochemical Specimen, separation of serum/plasma preservation and siposal of Biological materal
Chemical examination of urine : Qualitative, Sugar, Protein, Bile Salt,Bile Pigment, Ketones Bodies
Chemical examination of Stool : Occult Blood.
Chemical examination of other Body Fluids : CSF, Plural Fluids, Ascitic Fluid etc.
Laboratory management and Maintenance of Records.
Urine Examination physical, Chemical, Microscopic, BiochemistryStool Examination
Body Fluids : Physical and chemical examination CSF, Pleural Fluids, and Ascitic fluid

PATHOLOGY

The Cell in health and disease
Introduction of pathology

Cellular structure and metabolism
Inflammation – Acute and Chronic
Derangement of Body Fluids and Electrolytes
0Types of shocks
1Ischaemia
2Infection
Neoplasia – Etiology and Pathojgenesis
Introduction of hematology
Formation of Blood
Erythropoiesis
Leucopoiesis
Thrombopoiesis
Collection of Blood
Anticoagulants
Red cell count – Haemocytometer, Methodsand Calculation
WBC Count – Methods
Differential Leucocytes Count (DLC)—
Morphology of White Cells, Normal
Values Rananocostry Stains :
Staining procedures Counting
Methods, Principle of staining
Hb estimation –
Method
Colorimetric
Method Chemical
Method Gasmetric
Method S.G.
Method
Clinical Importance
Hematology :
ESR
Methods
Factors – Affecting ESR
Normal Values
ImportanceRBC – Indices
WBC
•Platelets
BodyFluids:
Urine :
Method of Collection
Normal Constitutents
Physical Examination
Chemical Examination
Stool Examination :

Method of Collection
Normal Constituents and appearance
Abnormal Constituents (Ova, Cyst)
C.S.F. Examination
Physical Examination
Chemical Examination
Microscopy
Cell 1 Count
Staining
Semen Analysis
Collection
Examination
Special Tests

DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY 2ND YEAR

BIOCHEMISTRY

Carbohydrates:-Introduction
Importance
Classification
Properties
Estimation of Glucose
Clinical Significance
Protein : -Introduction and Physiological importance
Amino acids
Essential amino acids
Classification
Denaturation of Proteins
Estimation of Total protein, Albumin, Globilin, A/G RatioIntroduction, Properties and function of important hormones
Enzymes and Co-enzymes
Introduction and difference
Functions
Estimation of important enzymes
0SGOT (AST)
1SGPT (ALT)
2Alkaline Phosphatase
3Acid Phosphatase
4Amylase, lactate dehydrogenase
5CPK, CPK-MB
Lipids : -Introduction and functions
Classification

Steroids
Metabolism
Estimation : Total lipids, HDL, LDL, VLDL, Total cholesterol, Trigycede
Clinical significance
Principal of Assay procedures for biological materal and estimation of kidney function tests.
Urea
Uric acid
Creatinine
Electrolytes :
Function
Properties
Estimation of Essential electrolytes : Soldium, potassium, calcium, chloride and Phos phorus etc.
Clinical Importance
Genetics
DNA, RNA Structure
Gene coding
Transciption & Translation
Genetic Disorders

MICROBIOLOGY

1. Immunology & Serology
2. Mycology
3. Animal Care
4. Clinical Microbiology
5. virology

PATHOLOGY

1. Histopathology
2. Cytopathology
3. Blood Banking

SOCIAL & PREVENTIVE MEDICINE

1. Preventive & Social medicine
2. Health
3. Disease
4. Hygiene
5. Environment & health
6. Water
7. Air
8. Ventilation
9. Waste management
10. Village sanitation
11. Nutrition & health

12. Balanced diet
13. Epidemiology
14. Principles of disease control & preventive
15. Family planning
16. Communicable diseases
17. Personal hygiene
18. Maternal & child health
19. School health services