## B.Sc. in Hospital Administration (B.Sc.-HA) First Year

#### FUNDAMENTALS OF ANATOMY & PHYSIOLOGY Subject Code : HIA-101 Min. Hrs - Theory : 100 Hrs. & Practical : 100 Hrs.

#### THEORY

## **ANATOMY :**

- 1. General Anatomy
  - a) Cell structure & function
  - b) Tissue
    - Epithelium
    - Connective
    - Sclerous
    - Muscular
    - Nervous
  - c) Lymphatic System

#### 2. Systemic

- Basic Features of :
- a) Cardiovascular system
- b) Respiratory system
- c) Digestive system
- d) Excretory system
- e) Genital (Male & Female) system
- f) Nervous system

# PHYSIOLOGY

- 1. Cell
- 2. Blood
  - a) Blood cells
    - b) Haemoglobin
    - c) Blood groups
    - d) Coagulation Factors
    - e) Anaemia & Immunoglobulins

#### 3. Cardiovascular system

Heart rate, cardiac cycle, cardiac output, blood pressure, hypertension, radial pulse

#### 4. Respiratory System

- a) Ventilation
- b) Functions
- c) Lungs Volumes and capacities
- 5. Gastrointestinal System
  - Process of digestion in various parts

#### 6. Endocrinology

- a) List of Endocrine Glands
- b) Hormones : Their secretion and functions (in brief)
- 7. Excretion system
  - a) Structure of nephron
  - b) Urine formation
- 8. Central Nervous System
  - a) Parts
  - b) Sliding Filament Theory
  - c) Neuro Muscular Junction
  - d) Wallerian Degeneration
  - e) Motor Nervous system
    - Upper motor neuron system
    - Lower motor neuron system
  - f) Sensory nervous system
  - g) Sympathetic Nervous system
  - h) Parasympathetic nervous system
- 9. Skin Function & Structure

## 10. Muscular System

Classification of muscles & their functions

11. Special Senses - Eye & ear (in brief)

# PRACTICAL

# ANATOMY

- 1. Identification and description of all anatomical structures.
- 2. The learning of Anatomy by demonstration only through dissected parts, slides, models, charts etc.
- 3. Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
- 4. Demonstration of skeleton-articulated and disarticulated.

# PHYSIOLOGY

- 1. Measurement of pulse, blood pressure.
- 2. Elicitation of Reflexes & jerks.
- 3. Identification of blood cells by study of peripheral blood smear.

# FUNDAMENTALS OF CLINICAL BIOCHEMISTRY Subject Code : HIA-102 Min. Hrs - Theory : 100 Hrs. & Practical : 80 Hrs.

# THEORY

1.	Basics of energy metabolism, nutrition & dietetics -
	Unit of measuring energy, calorific value of food, BMR & factors affecting it, SDA of
	food, calculation of energy requirement, balanced diet, nutrition in health & diseases
_	(Protein energy malnutrition).
2.	Chemistry of carbohydrates & their related metabolsim -
	Introduction, definition, classification, biomedical importance
	Brief outline of meatbolism :
	Glycogenesis & glycogenolysis (in brief), Glycolysis, citric acid cycle & its signifiance,
2	HMP shuft & Gluconeogenesis (in brief), regulation of blood glucose level.
З. Л	Chamistry of Drotoing & their related metabolism
4.	Introduction definition classification biomedical importance
	Metabolism ·
	Transformation Decarboxylation Ammonia formation & transport Urea cycle
5.	Chemistry of Lipids & their related metabolism -
	Introduction, definition, classification, biomedical importance, essential fatty acids.
	Brief out line of metabolism :
	Beta oxidation of fatty acids, Ketosis, Cholesterol & it's clinical significance,
_	Lipoproteins in the blood composition & their functions in brief, Atherosclerosis.
6.	Enzymes -
	Introduction, definition, classification, coenzymes, isoenzymes, properties, factors
	affecting enzyme action, enzyme inhibition, diagnostic value of serum enzymes -
	Creatinine Kinase, Alkaline phosphatase, Acid phosphatase, LDH, SGOI, SGPI,
7	Anylase, Lipase, Carbonic annyurase etc.
7. 8	Hormones -
0.	Classification, general mode of action, hormones of Pituitary, Thyroid, Parathyroid.
	Adrenals, Reproductive Glands, Pancreas, hormonal disorders, counter regulatory
	hormones.
9.	Vitamins -
	Water & fat soluble vitamins, sources, requirement, deficiency disorders & biochemical
	functions.

## 10. Water metabolism-

Distribution of fluids in the body, ECF, ICF, Water metabolism, dehydration.

### 11. Hyperglycemia & hypoglycemia -

Diabetes mellitus - definition, types, features, gestation diabetes mellitus, glucose tolerance test, glycosurias,

Hypoglycemia & its causes

## 12. Liver functions and their assessment -

Based on -

- a) Carbohydrate metabolism
- b) Protein metabolism
- c) Lipid Metabolism
- d) Measurements of serum enzyme levels
- e) Bile pigment metabolism : Jaundice its types and their biochemical findings.

# 13. Renal functions tests -

- Various tests, GFR & clearance.
- **14. Tumor markers & their clinical applications -**Including oncofeatal antigens, CEA etc.
- 15. General concepts & functions of immunoglobulins

# PRACTICAL

- 1. Identification of Carbohydrates (Qualitative Tests)
- 2. Identification of Proteins (Qualitative Tests)
- 3. To study general properties of the enzyme Urease & Achromatic time of Salivary Amylase.
- 4. Estimation of glucose in urine by Benedict's methods.
- 5. Urine analysis normal & abnormal constituents of urine.
- 6. Blood glucose estimation.

#### GENERAL PATHOLOGY & GENERAL MICROBIOLOGY Subject Code : HIA-103 Min. Hrs - Theory : 100 Hrs. & Practical : 100 Hrs.

# THEORY

# **GENERAL PATHOLOGY**

# 1. Cell Injury and Cellular Adaptations.

- a) Normal Cell
- b) Cell Injury- types of cell injury, etiology of cell injury, morphology of cell injury, cellular swelling (in brief)
- c) Cell death : types- autolysis, necrosis, apoptosis & gangrene (in brief)
- d) Cellular adaptations-atrophy, hypertrophy, hyperplasia & dysplasia (in brief)

# 2. Inflammation

- a) Acute inflammation vascular event, cellular event, inflammatory cells(in brief)
- b) Chronic Inflammation general features, granulomatous inflammation, tuberculoma (in brief)

# 3. Haemodynamic Disorders :

Oedema, hyperemia, congestion, haemorrage, circulatory disturbances, thrombosis, ischaemia & infarction (in brief)

### 4. Neoplasia :

Definition, how does it differ from hyperplasia, difference between benign tumor and malignant tumor (in brief)

#### 5. Healing

Definition, different phases of healing, factors influencing wound healing. (in brief)

## GENERAL MICROBIOLOGY

- 1. General characters and classification of Bacteria.
- 2. Sterilization and Disinfection.
  - Physical agents- Sunlight, Temperature less than 100<sup>o</sup>C, Temperature at 100<sup>o</sup>C, steam at atmospheric pressure and steam under pressure, irradiation, filtration.
    - Chemical Agents- Alcohol, Aldehyde, Dyes, Halogens, Phenols, Ethylene oxide.

### 3. Staining Methods

Simple, Grams staining, Ziehl-Neelsen staining or AFB staining, Negative, Impregnation

## 4. Collection and Transportation of Specimens

- General Principles, Containers, Rejection
- Samples Urine, Faeces, Sputum, Pus, Body fluids, Swab, Blood

## 5. Disposal of Laboratory/Hospital Waste

Non-infections waste, infected sharp waste disposal, infected non-sharp waste disposal.

### 6. Parasitology

Parasitism, host & vectors etc., classification of parasites, diseases caused by various parasites (in very brief)

## 7. Mycology

Morphology & structure of fungi (in brief), classification of fungi, lab diagnosis of fungal infections, opportunistic fungal infection

#### 8. Virology

General characters of viruses, classification of viruses, lab diagnosis of viral infections (in brief).

9. Nosocomial Infections (in brief)

# PRACTICAL

### **GENERAL PATHOLOGY**

- 1. Components & Setting of the Compound Microscope.
- 2. Focusing of object.
- 3. Use of low & high power objectives of microscope.
- 4. Use of oil immersion lens.
- 5. CanRe and maintenance of the Microscope.

# GENERAL MICROBIOLOGY

- 1. Preparation of swabs/sterile tubes & bottles.
- 2. Preparation of smear.
- 3. Staining.: Gram & Ziehl -Neelsen staining.
- 4. Identification of Culture Media.
- 5. Identification of Instruments.
- 6. Identification of common microbes.
- 7. Culture media used for fungus.

## MEDICAL TERMINOLOGY & MEDICAL JURISPRUDENCE Subject Code : HIA-104 Min. Hrs - Theory : 120 Hrs.

#### MEDICAL TERMINOLOGY

- 1. Objective
- 2. Basic
- 3. Elements of Medical Terms Root, Prefixes, Suffixes, Colours, Numeral, Symbols, Abbreviation .
- 4. Terms pertaining to Body as a whole.
- 5. Terms relate to investigations and operation, treatment of conditions, disorders of
  - a) Skin and Breast (integumentary system)
  - b) Musculoskeletal.
  - c) Neurological and psychiatric disorder.
  - d) Cardio- vascular
  - e) Blood and blood forming organs
  - f) Respiratory
  - g) Digestive
  - h) Uro-genital
  - i) Gynecological
  - j) Maternal, Antenatal and Neonatal conditions.
  - k) Endocrine and Metabolic.
  - l) Sense organs Vision & Hearing
  - m) Systemic: Infections, diseases, Immunological diseases, diseases of the connective tissue.
  - n) Geriatrics and Psycho geriatrics.
- 6. Supplementary terms : Selected terms relating:
  - a) Oncology
  - b) Anesthesiology
  - c) Physical Medicine and Rehabilitation
  - d) Nuclear medicine.
  - e) Plastic surgery of burns and maxillofacial surgery
  - f) Radio-Diagnosis
  - g) Radiotheraphy

### MEDICAL JURISPRUDENCE

- 1. Introduction.
- 2. Legal procedure, Medical law and ethics.
- 3. Medicolegal autopsy (in brief).
- 4. Postmortem changes.
- 5. External causes of injuries and medico legal aspects (case study).

# COMPUTER & ENGLISH

# (Not for university Examination)

# Computer (Min. Hrs - Theory : 30 Practical : 30)

- 1. Basics of computer
- 2. Hardware and software
- 2. Input and output devices
- 3. Operating system DOS, etc
- 4. Internet-
  - Email, social networking, application in medicine, browsing journals and article using internet

## English (Min. Hrs - Theory : 40 Hrs. )

1. Introduction:

Study techniques, Organisation of effective note taking and logical processes of analysis and synthesis, the use of the dictionary, enlargement of vocabulary& effective diction.

- 2. Applied Grammar: Correct usage, the structure of sentences, the structure of paragraphs.
- 3. Written Composition: Precise writing and summarising, writing of bibliography, enlargement of vocabulary.
- 4. Reading and comprehension Review of selected materials and express oneself in one's words, enlargement of vocabulary.
- 5. The study of various forms of composition paragraph, essay, letter, summary, practice in writing.
- 6. Verbal communication:

Discussions and summarization, debates, oral reports, use in teaching.

# B.Sc. in Health Information Administration (B.Sc.-HIA) Second Year

## BIOSTATISTICS & ACCOUNTANCY Subject Code : HIA-201 Min. Hrs - Theory : 100 Hrs.

### BIOSTATISTICS

- 1. **Introduction**: Meaning, definition, characteristics of statistics. Importance of the study of statistics, Branches of statistics, Statistics and health science, Parameters and Estimates, Variables and their types, Measurement scales.
- Tabulation of Data: Basic principles of graphical representation, Types of diagrams

   histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve.
- 3. **Measures of Central Tendency**: Need for measures of central Tendency, Definition and calculation of **Mean** ungrouped and grouped, interpretation and calculation of Median-ungrouped and grouped, Meaning and calculation of Mode, Geometric mean & Hormonic mean, Guidelines for the use of various measures of central tendency.
- 4. Measures of Dispersion : Range, mean deviation, standard deviation & variance.
- 5. **Probability and Standard Distributions:** Meaning of probability of standard distribution, the binominal distribution, the normal distribution, Divergence from normality skewness, kurtosis.
- 6. **Correlation & regression :** Significance, correlation coefficient, linear regression & regression equation.
- 7. Testing of Hypotheses , Level of significance, Degrees of freedom.
- 8. Chi-square test, test of Goodness of fit & student t-test.
- 9. **Analysis of variance & covariance:** Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA)
- 10. **Sampling:** Definition, Types- simple, random, stratified, cluster and double sampling. Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors.
- 11. Time series analysis, Method of determining trend, Utility of time series.

### ACCOUNTANCY

- 1. Fundamentals-Financial accounting overview, Accounting postulates, Concept and principles.
- 2. Accounting records and system- Accounting equation and Transactional analysis, Journal entries, Cash books and subsidiary books, Ledger posting, Trial Balance.
- 3. Bank reconciasition Statement, Rectification of errors, Preparations of financial statement, Trading & P/L accounts, Balance sheet.
- 4. Financial statement analysis- Statement of change in the financial position, cash flow statement, financial statement analysis, ratio analysis.
- 5. Nature of financial Management Role of Finance Manager, Tools and techniques of Financial Management.

### HOSPITAL ORGANIZATION, HEALTH PLANNING & MANAGEMENT Subject Code : HIA-202 Min. Hrs - Theory : 100 Hrs.

### HOSPITAL ORGANIZATION

# 1. General Introduction to Hospitals

- a) History and Evolution of Hospitals
- b) New Trends in Hospitals

# 2. Definition of Hospital

- a) Objectives of Hospital
- b) Parameters of Good Medical Care/Patterns of Patient Care.
- c) Functions of Hospital
- 3. Role of a Hospital in Health Delivery Systems
- 4 Classification of Hospitals

# 5. Hospitals Organization and its analysis

- a) Chart of organization
- b) Board and committees
- c) Duties and responsibilities thereof

# 6. Departmental Administration

- a) Delegation
- b) Decentralization

# 7. Patient Care Appraisal (PCA)

- a) History of medical audit
- b) Tools and techniques
- c) Various Phases of medical audit

# 8. Introduction to various departments of Hospital

- a) Clinical departments
- b) Diagnostic and therapeutic services (including clinical laboratories, radiology, physical medicine and rehabilitation and pharmacy services).
- c) Nursing department
- d) Dietary department
- e) Outpatient department
- f) Accident and emergency services department
- g) Medical social service department
- h) General and medical stores
- i) Blood bank
- j) Medical library services
- 9. Service Unit: Laundry, housekeeping
- 10. Miscellaneous Service : Engineering, mortuary and transport services.

#### HEALTH PLANNING & MANAGEMENT

- 1. Planning Introduction, objectives, targets & goals, planning cycle (in brief)
- 2. Management Introduction, methods & techniques (in brief)
- 3. National Health Policy .
- 4. Health planning in India Five year plans & eleventh five year plan.

#### MEDICAL RECORD SCIENCE Subject Code : HIA-203 Min. Hrs - Theory : 120 Hrs.

- 1. Introduction to Medical Record Science.
- 2. Medical Records Definitions, Hospital Terms, Specialty classifications.
- 3. Development, Analysis and Uses of Medical Records
  - (i) Development of Medical Record Forms, basic and special
  - (ii) Order of Arrangements
    - <mark>(a) Ward</mark>
    - (b) Medical Record Department
    - (c) Source oriented medical record
    - (d) Problem oriented medical record
    - (e) Integrated Medical Record
  - (iii) Analysis of Medical record Quantitative & Qualitative
  - (iv) Uses of Medical Records -
    - (a) As a personal document
    - (b) As impersonal document
- 4. Values of the Medical Record
- 5. Responsibility for the Medical Record
  - a. Governing Body
  - b. Administrator
  - c. Medical Stiff
  - d. Nursing Staff
  - e. Medical record Officer
  - f. Medical Record Committee
  - g. Medical care review committee
- 6. Functions of medical record department : Importance & Function
  - a) Organization of admitting services b) In patient services
  - c) Out patient services d) Accident and emergency services
- 7. Numbering, filling, retention of medical records
  - a) Numbering System
    - b) Filling System Physical facilities, Storage methods & Record Control
    - c) Retention and destruction of medical records Retention procedures & Disposal procedures
- 8. Indexes (indexing of patient care data) : Patient, Diseases, Operative procedure & Physician
- 9. Design, maintain, updating of information system : Manual, Mechanical & Electronic
- 10. Legal aspects of medical records
  - a) Misprinting
  - b) Medical as a legal document
  - c) Release of information from medical records
  - d) Legal action requiring evidence from medical records
  - e) Privileged communication

f) Consent and authorization

- g) Owner ship
- 11. The right to information act, 2005
  - a. Definition
  - b. Right to information.
  - c. Designation of Public Information Officers.
  - d. Request for obtaining information.
  - e. Disposal of request.
  - f. Exemption from disclosure of information.
  - g. Constitution of Central Information Commission.
  - h. Constitution of State Information Commission.
- 12. The Consumer Protection Act, 1986
  - a. Definition.
  - b. The Central Consumer Protection Council.
  - c. Objects of the Central Council.
  - d. The State Consumer Protection Councils.
  - e. Objects of the State Council.
  - f. Composition of the District forum.
  - g. Jurisdiction of the District Forum.

# B.Sc. in Health Information Administration (B.Sc.-HIA) Third Year

# HOSPITAL ADMINISTRATION & HEALTH CARE OF THE COMMUNITY Subject Code : HIA-301

Min. Hrs - Theory : 120 Hrs., Practical : 100 Hrs.

THEORY

## HOSPITAL ADMINISTRATION

- 1. Public Relations.
- 2. Personnel administration.
- 3. Financial Administration.
- 4. Engineering and Maintenance.
- 5. House Keeping.
- 6. General Stores.
- 7. Hospital waste disposal.

### HEALTH CARE OF THE COMMUNITY

- 1. Introduction
- 2. Levels of health care
- 3. Elements and principles of primary health care
- 4. Health care delivery
- 5. Health problems
- 6. Health care services
- 7. Health care systems
- 8. Primary health care in India (in brief)
- 9. Health insurance
- 10. Voluntary health agencies in India
- 11. Health programmes in India (in brief)

### PRACTICAL

1. Visits to hospitals, diagnostic centres, laboratories & health care institutions & maintenance of the records of the visits.

2. Making management inferences from such visits.

#### MANAGING MEDICAL RECORD & EPIDEMIOLOGY Subject Code : HIA-302 Min. Hrs - Theory : 100 Hrs. THEORY

## MANAGING MEDICAL RECORD

- 1. Organization and management of medical record, Health records in various types of health care institutions.
- 2. Uses of medical records in medical care evaluation
  - a. Principles of inter viewing of a patient.
  - b. Central admitting services.
  - c. Importance of central admitting services.
  - d. Organisational aspect of central admitting office.
  - e. Admitting policies of patient.
  - f. Type of service of central admitting office.
  - g. Functions of central admitting office.
  - h. Location of central admitting office.
- 3. Section of Medical Record
  - a. Identification or sociological section.
  - b. Medical section.
  - c. Nurses section
- 4. Important Section of Medical Record Department
  - a. Assembling of medical record.
  - b. Typing of discharge list.
  - c. Registration of new & old cases.
  - d. Incomplete records control.
  - e. Coding diseases and operation.
  - f. Indexing diseases and operation.
  - g. Filling
- 5. Retrieval of new & old records (outpatient & in patient)
- 6. Outpatient statistics, discharge analysis.

## **EPIDEMIOLOGY**

- 1. Definition
- 2. Basic measurements in epidemiology (in brief).
- 3. Incidence & prevalence
- 4. Epidemiological studies (in brief)
- 5. Definition of epidemic, endemic, sporadic, pandemic, exotic, zoonosis, epizootic & epornithic.
- 6. Surveillance
- 7. Classification of diseases as per I.C.D. (published by W.H.O.), Classification of diseases as per I.C.D. C.M. (S.N.D.P.) (published by U.S. public health department),

#### MEDICAL TRANSACTION, ANALYSIS OF HEALTH INFORMATION Subject Code : HIA-303 Min. Hrs. - 100 Hrs.

#### MEDICAL TRANSACTION

- a) Inter departmental relations.
- b) Introduction
- c) Knowledge of personnel administration.
- d) Understanding relationships.
- e) Governing board and administrator.
- f) Medical staff and medical record committee.
- g) Fellows residents interns emergency department.
- h) Admitting department.
- i) Nursing department
- j) Clinical and pathological laboratory
- k) Anesthesiology & surgery
- Radiology Department
- m) Physical therapy Department
- n) Dietary Department
- o) Medical Library
- p) Accounting, personnel, purchasing, stores & maintenance.

#### ANALYSIS OF HEALTH INFORMATION

#### 1. Health information system -

- a) Introduction
- b) Distinction between data and information.
- c) Components of health information system.
- d) Uses of health information
- e) Sources of health information census, registration of vital events, sample registration system, notification of diseases, hospital records, disease registers, record linkage, epidemiological surveillance, other health records, environmental health data, health man power statistics, population surveys, other routine statistics related to health, non-quantifiable information.
- 2. collection of statistical data
- 3. Computation of ratios
- 4. Rates most frequently computed
  - a. Mortality Rate
  - b. Gross Death Rate
  - c. Net Death Rate or Institutional Death Rate.
  - d. Anesthesiology death rate.
  - e. Post operative death rate.
  - f. Maternal Death Rate.