

*BACHELORS IN PHYSIOTHERAPY*

*(B.P.T)*

*DURATION - 4 YEARS*

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## **SUBJECT : ANATOMY -1<sup>ST</sup> YEAR**

1. INTRODUCTION TO ANATOMY & HISTOLOGY, STRUCTURE OF CELL, EPITHELIAL TISSUE, MUSCULAR TISSUE, NERVOUS TISSUE.
2. SKELETAL SYSTEM, STRUCTURE OF BONES, TYPES OF BONES, BONES OF CRANIUM,FACE VERTEBRAL COLUMN UPPER AND LOWER LIMBS, FRACTURE OF BONES, VARIOUS MOVEMENTS OF JOINTS.
3. MUSCULAR SYSTEM, STRUCTURE AND TYPES OF MUSCLES IN HUMAN BODY, IMPORTANT MUSCLES AND THEIR GROUP ACTION.
4. CIRCULATION SYSTEM, STRUCTURE OF HEART, NAMES AND POSITION OF MAIN BLOOD VESSELS.
5. LYMPHATIC SYSTEM, LYMPH VESSELS,LYMPH NODES AND LYMPHOID ORGANS, THEIR STRUCTURE & FUNCTIONS.
6. DIGESTIVE SYSTEMS. PARTS OF GASTROINTESTINAL TRACT AND ASSOCIATED GLANDS.
7. RESPIRATORY SYSTEM. PARTS OF RESPIRATORY SYSTEM.
8. URINARY SYSTEM. PARTS OF URINARY SYSTEM.
9. ENDOCRINE SYSTEM. VARIOUS ENDOCRINE GLANDS. THYROID. PARATHYROID. ADRENAL GLANDS PITUITARY PANCREAS. THYMUS AND SEX GLANDS.
10. REPRODUCTIVE SYSTEM. MALE & FEMALE REPRODUCTIVE ORGANS.
11. SKIN AND SENSE ORGANS. EYE, EAR, NOSE. TASTE BUDS.
12. NERVOUS SYSTEM. PARTS OF BRAIN, SPINAL CORD, PERIPHERAL NERVES.

## **SUBJECT : PHYSIOLOGY -1<sup>ST</sup> YEAR**

1. BLOOD. COMPOSITION AND FUNCTION OF BLOOD, HAEMOPESIS, BLOOD COAGULATION, BLOOD GROUPS, BODY FLUID.
2. CARDIOVASCULAR SYSTEMS. CIRCULATION OF BLOOD, FUNCTION OF HEART AND BLOOD VESSELS. CONTROL OF HEART RATE, PULSE, REGULATION OF BLOOD PRESSURE, BLOOD VOLUME.
3. RESPIRATORY SYSTEM. FUNCTION OF LUNGS, MECHANISM OF BREATHING AND EXCHANGE OF GASES IN THE LUNGS, REGULATION OF RESPIRATION, RESPIRATION DISORDER LIKE ANOXIA. DYSPNEA CYANOSIS ETC.ARTIFICIAL RESPIRATION LUNG FUNCTION TESTS.
4. DIGESTIVE SYSTEMS. DIGESTION OF FOOD IN MOUTH, STOMACH & SMALL INTESTINES. ABSORPTION OF FOOD, FUNCTION OF LIVER FUNCTION TESTS.
5. EXCRETORY SYSTEMS. STRUCTURE & FUNCTION OF KIDNEY AND URINARY BLADDER. MECHANISM OF URINE FORMATION. DISORDERS OF KIDNEY.
6. ENDOCRINE SYSTEMS. PHYSIOLOGY & FEMALE REPRODUCTIVE ORGANS.
7. NERVOUS SYSTEM. NEURONE & ITS FUNCTIONS, FUNCTION OF CENTRAL NERVOUS SYSTEM. AUTONOMIES NERVOUS SYSTEM, PHYSIOLOGY OF VISION, HEARING & OLFACTION.

## **SUBJECT : PSYCHOLOGY -1<sup>ST</sup> YEAR**

1. DEVELOPMENT PSYCHOLOGY & ITS THEORIES-PHYSIO-PSYCHOLOGICAL CHANGES DURING INFANCY, EARLY AND MIDDLE CHILDHOOD, ADOLESCENT STAGE, PUBERTY, ADULTHOOD & OLD AGE.
2. DEFINITION OF PSYCHOLOGY, ITS NATURE-FIELDS & SUB FIELDS OF PSYCHOLOGY
3. SCHOOLS OF THOUGHT-PSYCHO-ANALYTICAL THEORY, BEHAVIORISM, GESTALT, STRUCTURALISM, FUNCTIONALISM
4. LEARNING-ROLE OF LEARNING IN HUMAN LIFE, CONDITIONING
5. EMOTIONS-NATURE & RELATIONSHIP WITH AUTONOMIC NERVOUS SYSTEM- THEORIES OF EMOTIONS (A) JAMES LANGE THEORY, (B) SCATTER SINGER THEORY, (C) CANNAN BARD THEORY
6. MEMORY-TYPES, FORGETTING, CAUSES OF FORGETTING
7. ATTENTION & PERCEPTION-NATURE OF ATTENTION, NATURE OF PERCEPTION, PRINCIPLES OF GROUPING
8. CONFLICT & FRUSTRATION-TYPES-COMMON DEFENSE MECHANISM, STRESS, COMMON REACTION TO FRUSTRATIONS.
9. ABNORMAL PSYCHOLOGY:- (A) INTRODUCTION, (B) DIFFERENCE BETWEEN NORMAL & ABNORMAL PSYCHOLOGY, (C) CAUSES, (D) ANXIETY DISORDERS-PHOBIAS, OBSESSIVE-COMPULSIVE DISORDER, HYSTERICAL CONVULSION DISORDER, (E) AFFECTIVE DISORDERS-DEPRESSION, MANIA, BIPOLAR DISORDERS, (F) PSYCHOTIC DISORDERS-TYPES OF SCHIZOPHRENIA

### **TEXT BOOKS**

1. INTRODUCTION OF PSYCHOLOGY BY MORGAN C.T & KING R.A.-7<sup>TH</sup> EDN (TATA MCGRAW-HILL PUBLICATION)
2. INTRODUCTION TO PSYCHOLOGY BY MUNN N.L.-(PREMIUM OXFORD, I.B.P PUBLISHING CO.)

## **SUBJECT : S.P.M. -1<sup>ST</sup> YEAR**

1. INTRODUCTION TO PREVENTIVE AND SOCIAL MEDICINE CONCEPT, MAN AND SOCIETY-AIM AND SCOPE OF PREVENTIVE AND SOCIAL MEDICINE, SOCIAL CAUSES OF DISEASE AND SOCIAL PROBLEMS OR THE SICK, RELATION OF ECONOMIC FACTORS AND ENVIRONMENT IN HEALTH AND DISEASE.
2. PHYSIOLOGICAL HYGIENE:- (A) FOOD AND NUTRITION-FOOD IN RELATION TO HEALTH AND DISEASE. BALANCED DIETS. NUTRITIONAL DEFICIENCIES AND NUTRITIONAL SURVEY. FOOD PROCESSING, PASTEURIZATION OF MILK, ADULTERATION OF FOOD INSPECTION, FOOD POISONING. (B) AIR,LIGHT AND SUNSHINE., (C) EFFECT OF CLIMATE HUMIDITY TEMPERATURE,PRESSURE AND OTHER METEOROLOGICAL CONDITIONS-COMFORT ZONE, EFFECT OF OVERCOMING, (D) PERSONAL HYGIENE-CLEANLINESS, REST,SLEEP, WORK-PHYSICAL EXERCISE AND TRAINING CARE OF HEALTH IN TROPICS.
3. ENVIRONMENTAL SANITATION:- (A) DEFINITION AND IMPORTANCE,(B) ATMOSPHERIC POLLUTION-PURIFICATION OR AIR, AIR STERILIZATION, AIR BORNE DISEASES.,(C) WATER SUPPLIES-SOURCES AND USES,IMPURITIES AND PURIFICATION, PUBLIC WATER SUPPLIES IN URBAN AND RURAL AREAS. STANDARDS OF DRINKING WATER, WATER BORNE DISEASES.(D) CONSERVANCY-METHODS IN VILLAGES, TOWNS AND CITIES, SEPTIC TANKS, DRY EARTH LATRINES-WATER CLOSETS. DISPOSAL OF SEWAGE, DISPOSAL OF DECREASED, DISPOSAL OF REFUGEE INCINERATION. (E) SANITATION AFFAIRS AND FESTIVALS, (F) DISINFECTION-DISINFECTIONS, DEODORANTS, ANTISEPTICS, GERMICIDES. METHODS OF DISINFECTION AND STERILIZATION., (G) INSECTS-INSECTICIDES AND DISINFECTION-INSECTS IN RELATION TO DISEASE. INSECT CONTROL. (H) PROTOZOAN AND HELMINTHIC DISEASES LIFE CYCLE OF PROTOZOAN AND HELMINTHSS, THEIR PREVENTION.
4. MEDICAL STATISTICS:- PRINCIPLES AND ELEMENTS OF VITAL STATISTICS.

**PREVENTIVE MEDICINE:-** GENERAL PRINCIPLES OF PREVENTION AND CONTROL OF COMMUNICABLE DISEASES. PLAGUE, CHOLERA, SMALL POX DIPHThERIA, LEPROSY, TUBERCULOSIS, MALARIA, KALA AZAR, FILARIASIS, COMMON VIRAL DISEASE EG. COMMON COLD, MEASLES, CHICKEN POX, POLIOMYELITIS. INFECTIVE HEPATITIS, HELMINTHIC INFECTIONS, ENTERIC FEVER, DYSENTERIES AND ALSO ANIMAL DISEASE TRANSMISSIBLE TO MAN. THEIR DESCRIPTION AND METHOD OF PREVENTIVE SPREAD BY CONTACT, BY DROPET INFECTION BY ENVIRONMENTAL VEHICLES (WATER, SOIL, FOOD INSECTS ANIMALS, FOUNDERIES, PROPHYLAXI AND VACCINATION).

5. MATERNAL AND CHILD HEALTH: SCHOOL HEALTH SERVICE, HEALTH EDUCATION, MENTAL HYGIENE-ELEMENTARY PRINCIPLES: SCHOOL MEDICINE ITS AIM AND METHODS.
6. FAMILY PLANNING:- DEMOGRAPHY, CHANNELS OF COMMUNICATION, NATIONAL FAMILY PLANNING PROGRAMME, KNOWLEDGE, ATTITUDES REGARDING CONTRACEPTIVE PRACTICES. POPULATION AND GROWTH CONTROL.
7. PUBLIC HEALTH:- ADMINISTRATIVE AND INTERNATIONAL HEALTH RELATION.
8. HOMOEOPATHIC CONCEPT OF PROPHYLAXIS, VACCINATION, IMMUNOLOGY AND PERSONAL HYGIENE.

## **SUBJECT :BIOSTATICS & SOCIOLOGY -1<sup>ST</sup> YEAR**

### **BIOSTATICS**

1. INTRODUCTION- USES OF STATISTICAL METHODS IN PHYSIOTHERAPY-MEASUREMENT SCALES, VARIABLES & THEIR MEASUREMENTS, SYMBOLIC DATA, OPERATIONS.
2. STATISTICAL DATA-TABULATION, CALCULATION OF CENTRAL TENDENCY & DISPERSION, LINEARREGRESSION & CORRELATION-PRESENTATION OF DATA IN DIAGRAMMATIC & GRAPHIC FORM.
3. PROBABILITY & SAMPLING AS A MATHEMATICAL SYSTEM, POPULATION & SAMPLES, SAMPLING DISTRIBUTION, SAMPLING METHODS.

### **TEXT BOOK:- METHODS IN BIOSTATICS-B.K. MAHAJAN**

### **SOCIOLOGY**

1. INTRODUCTION –DEFINITION & RELEVANCE WITH PHYSIO THERAPY
2. SOCIOLOGY & HEALTH- SOCIAL FACTORS AFFECTING HEALTH STATUS, SOCIAL CONSCIOUSNESS& PERCEPTION OF ILLNESS, DECISION MAKING IN TREATMENT.
3. SOCIALIZATION-DEFINITION, INFLUENCE OF SOCIAL FACTOR ON PERSONALITY, SOCIALIZATION IN THE HOSPITAL & REHABILITATION OF THE PATIENTS.
4. SOCIAL GROUPS-CONCEPTS, INFLUENCE OF FORMAL & INFORMAL GROUPS ON HEALTH & DISEASES, ROLE OF PRIMARY & SECONDARY GROUPS IN THE HOSPITAL &N REHABILITATION SETTING.

## **SUBJECT : BIOPHYSICS -1<sup>ST</sup> YEAR**

### **GENERAL PROBLEMS**

- 1) INTRODUCTION TO BIOPHYSICS: HISTORICAL OVERVIEW, CONNECTIONS WITH PHYSICS, BIOLOGY AND MEDICINE.
- 2) CAUSATION AS THE MAIN ACTING PRINCIPLE IN THE PHYSICAL REALITY.
- 3) MATHEMATICS AS THE EXACT INSTRUMENT OF THE QUANTITATIVE METHODS. MODELLING.
- 4) PRINCIPLE OF MEASUREMENT. PHYSICAL UNITS OF MEASUREMENT, THEIR SYSTEMS. THE SI SYSTEM. MEASUREMENT UNCERTAINTY, WAYS TO EXPRESS IT.
- 5) EQUALITIES AND EQUATIONS AS THE LANGUAGE OF FORMULAE USED IN NATURAL SCIENCES.
- 6) FUNCTIONS: NOTION, PROPERTIES, FORMS OF PRESENTATION, APPLICATIONS IN PHYSICS. PROPORTIONALITY AND LINEAR FUNCTION. LINEAR AND NON-LINEAR SYSTEMS. PRINCIPLE OF SUPERPOSITION. DERIVATIVE AND INTEGRAL OF A FUNCTION, THEIR APPLICATIONS.
- 7) NOTION OF A MASS POINT. THE MAIN FORMS OF MOTION. PRINCIPLE OF SUPERPOSITION FOR MOTIONS.
- 8) FUNDAMENTAL NOTIONS OF DYNAMICS: MASS, ACCELERATION, FORCE, STRESS, PRESSURE. THE NEWTON'S LAWS.
- 9) WORK, POWER AND ENERGY: NOTIONS, CALCULATION.
- 10) CONSERVATION LAWS, THEIR CHARACTER AND LIMITS OF VALIDITY.
- 11) GASEOUS, LIQUID AND SOLID STATE OF THE MATTER, PARTICLE INTERACTIONS AS THE BASIS OF THE STATES.
- 12) LAWS DESCRIBING THE STATE OF GAS AND MIXTURE OF GASES: IDEAL GAS EQUATION BY CLAPEYRON AND MENDELEYEV.
- 13) MODELS FOR THE DESCRIPTION OF FLOWS OF LIQUIDS BY BERNOULLI AND POISEUILLE, CORRESPONDING EQUATIONS. VISCOSITY OF LIQUIDS. LAMINAR AND TURBULENT FLOW, THE REYNOLDS' NUMBER.
- 14) OSCILLATION AS A KIND OF MECHANICAL MOTION. CHARACTERISTIC QUANTITIES FOR OSCILLATION. TYPES OF OSCILLATION. SUPERPOSITION PRINCIPLE IN CASE OF OSCILLATIONS.

15) WAVES AS A KIND OF MECHANICAL MOTION. CHARACTERISTIC QUANTITIES FOR WAVES. MAIN FORMS AND PROPERTIES OF WAVES. DOPPLER EFFECT. APPLICATIONS OF ULTRASOUND IN MEDICAL DIAGNOSTICS.

16) ELECTRIC CHARGES, THE LAWS OF THEIR INTERACTION. ELECTRIC FIELD, CHARACTERISTIC QUANTITIES FOR IT. DIPOLES. CONDUCTIVE AND DIELECTRIC MATERIALS, THEIR BEHAVIOR IN THE ELECTRIC FIELD.

17) ELECTRIC CURRENT, ITS CHARACTERISTICS. OHM'S LAW. RESISTANCE OF A CYLINDRICAL ELECTRIC CONDUCTOR. KIRCHHOFF'S LAWS FOR CIRCUITS WITH CURRENTS.

18) MAGNETIC FIELD, ITS CHARACTERISTICS. ELECTROMAGNETIC INDUCTION, FARADAY'S LAW. ALTERNATING CURRENT.

19) EFFECT OF THE ELECTRIC CURRENT ONTO LIVING ORGANISM. ON THE DESIGN OF THE ELECTRIC SUPPLY SYSTEMS. MEANS AND DEVICES TO PROVIDE ELECTRIC SAFETY. SAFETY OF MEDICAL ELECTRICAL DEVICES.

20) ELECTROMAGNETIC WAVES, THEIR CHARACTERISTICS AND THEIR CLASSIFICATION.

21) PHYSICAL CHARACTERIZATION OF LIGHT. PHENOMENA AT LIGHT SPREADING: REFLECTION, REFRACTION, ABSORPTION, INTERFERENCE, DIFFRACTION, SCATTERING. OPTICAL PROPERTIES OF LENSES.

22) X-RAYS, THEIR PROPERTIES. SOURCES OF X-RADIATION. APPLICATIONS OF X-RAYS TO BIOLOGY AND MEDICINE.

23) RADIOACTIVITY AND RADIOACTIVE ISOTOPES. CHARACTERISTICS OF RADIOACTIVITY. RADIOACTIVE RADIATIONS AND THEIR CLASSIFICATION. EFFECT OF RADIOACTIVE RADIATIONS ONTO LIVING ORGANISM. MEASUREMENT OF RADIATIONS. APPLICATION OF RADIOACTIVITY TO MEDICINE.

### **SPECIFIC PROBLEMS**

24) THE STRUCTURE OF BIOLOGICAL MEMBRANES. THE TRANSPORT PROCESSES THROUGH BIOLOGICAL MEMBRANES. MEMBRANE AS A SELECTIVE BARRIER FOR DIFFERENT SUBSTANCES, THE CONTRIBUTION OF LIPID BILAYER AND MEMBRANE PROTEINS (CHANNELS AND TRANSPORTERS) TO THE BIOLOGICAL TRANSPORT PROCESSES. ACTIVE AND PASSIVE FORMS OF THE MEMBRANE TRANSPORT.

- 25) DIFFUSION AS THE MAIN WAY OF PASSIVE TRANSPORT. THE FICK'S LAW OF DIFFUSION. OSMOSIS AND OSMOTIC PRESSURE. THE ROLE OF OSMOSIS IN CELL VOLUME REGULATION. ISO-, HYPO- AND HYPERTONIC SOLUTIONS, THEIR INFLUENCE ON THE CELL.
- 26) ACTIVE AND PASSIVE BIOELECTRIC PROPERTIES OF MEMBRANES. EQUIVALENT ELECTRIC CIRCUIT OF MEMBRANE.
- 27) THE EQUILIBRIUM POTENTIAL FOR IONS, THE NERNST EQUATION. THE RESTING POTENTIAL OF MEMBRANE, CONDITIONS GENERATING IT. THE GOLDMANN-HODGKIN-KATZ EQUATION. THE GIBBS-DONNAN EQUILIBRIUM.
- 28) THE PASSIVE ELECTRIC OR ELECTROTONIC OR CABLE PROPERTIES OF EXCITABLE MEMBRANES. THE TIME AND LENGTH CONSTANTS OF MEMBRANE.
- 29) THE ACTION POTENTIAL: NATURE, PHASES, TEMPORARY DYNAMICS, MAIN PROPERTIES. IONIC BASIS OF THE ACTION POTENTIAL GENERATION. STUDY OF ION CHANNELS BY THE PATCH CLAMP TECHNIQUE. ACTION POTENTIALS IN DIFFERENT TYPES OF EXCITABLE CELLS. THE ELECTROTONIC AND SALTATORY MECHANISMS OF THE CONDUCTION OF ACTION POTENTIAL.
- 30) GENERAL DESIGN AND MAIN FUNCTIONS OF THE CARDIOVASCULAR SYSTEM. THE PHYSICAL NATURE OF CIRCULATION IN THE CARDIOVASCULAR SYSTEM.
- 31) THE CARDIAC PUMP. MAIN MEASURES OF THE PUMP FUNCTION. HEART CHAMBERS AND VALVES, THEIR FUNCTIONS. HEART SOUNDS.
- 32) THE CARDIAC CYCLE, ITS PHASES. BLOOD PRESSURE AND VOLUME DYNAMICS IN THE LEFT AND RIGHT VENTRICLE DURING CARDIAC CYCLE.
- 33) BLOOD FLOW, LINEAR VELOCITY AND RESISTANCE IN DIFFERENT REGIONS OF THE CIRCULATION.
- 34) BLOOD PRESSURE: TERMS AND REGIONAL DIFFERENCES. THE METHODS OF BLOOD PRESSURE MEASUREMENT.
- 35) DESCRIPTION AND PHYSICAL NATURE OF MAIN STEPS OF RESPIRATION.
- 36) THE BREATHING CYCLE. MECHANISMS OF INSPIRATION AND EXPIRATION: CHANGES OF VOLUME AND PRESSURES. ELASTICITY OF LUNG AND THORAX, THEIR ROLE IN BREATHING. COMPLIANCE.
- 37) BIOPHYSICAL PROPERTIES OF SKELETON, JOINTS AND MUSCLES. MODEL OF THE MUSCLE.
- 38) THE SLIDING FILAMENT THEORY OF MUSCLE CONTRACTION. MAIN FORMS OF MUSCLE CONTRACTION.

39) THE SHANNON'S PRINCIPAL SCHEME OF INFORMATION TRANSMISSION. INFORMATION TRANSFER IN LIVING SYSTEMS: MAIN FORMS AND WAYS. MEASURING THE AMOUNT OF INFORMATION.

40) MAIN STEPS OF INFORMATION PROCESSING IN SENSORY SYSTEMS. J. MÜLLER'S LAW OF SPECIFIC NERVE ENERGIES. QUANTITATIVE ASPECTS OF INFORMATION TRANSMISSION IN SENSORY SYSTEMS.

41) SENSORY RECEPTORS: CLASSIFICATION, BASIC PROPERTIES. TRANSDUCTION IN RECEPTORS. RECEPTOR OR GENERATOR POTENTIAL: NATURE, PROPERTIES, IONIC MECHANISM, TRANSFORMATION TO THE ACTION POTENTIAL. ADAPTATION IN SENSORY RECEPTORS, ITS NATURE, BIOPHYSICAL MECHANISMS AND BIOLOGICAL VALUE.

42) THE OPTICAL SYSTEM OR THE DIOPTRIC APPARATUS OF THE EYE. REGULATORY PROCESSES IN THE DIOPTRIC APPARATUS. THE PRODUCTION OF AN IMAGE ON THE RETINA. ACCOMMODATION IN THE OPTICAL SYSTEM OF EYE.

43) OPTICAL DEFECTS AND REFRACTIVE ANOMALIES. MYOPIA AND HYPERMETROPIA: NATURE AND POSSIBLE WAYS OF CORRECTION.

44) PHYSICAL PROPERTIES OF THE SOUND STIMULUS: SOUND FREQUENCY, PRESSURE, PRESSURE LEVEL, INTENSITY. SOUNDS, TONES, NOISES. THE SOUND FREQUENCIES PERCEIVED BY HUMAN AUDITORY SYSTEM. MEASURES OF AUDITORY PSYCHOPHYSICS: AUDITORY THRESHOLD, LOUDNESS, INTENSITY-DIFFERENCE THRESHOLDS, FREQUENCY-DIFFERENCE THRESHOLD.

45) TRANSMISSION OF SOUND FROM EXTERNAL ENVIRONMENT TO INNER EAR. TRANSDUCTION AT THE HAIR CELLS.

46) THE CONCEPT OF HOMEOSTASIS, ITS DEVELOPMENT (C. BERNARD'S AND W. CANNON'S CONTRIBUTION) AND SIGNIFICANCE IN BIOLOGY, MEDICINE, PSYCHOLOGY ETC. THE CLASSIFICATION OF HOMEOSTATIC PARAMETERS.

47) THE CONTROL AND REGULATION OF BODY FUNCTIONS: NEEDS, LEVELS AND GOALS.

48) THE CONTROL SYSTEM, ITS COMPONENTS AND BASIC TERMINOLOGY. THE CONTROL SYSTEMS WITH NEGATIVE OR POSITIVE FEEDBACK, THEIR REGULATORY FEATURES. THE TRANSITION FUNCTION, STABILITY AND OSCILLATIONS IN THE CONTROL SYSTEMS.

49) THERMODYNAMICS OF LIVING SYSTEMS, LAWS OF THERMODYNAMICS.

## **SUBJECT : BIO-ENGG.- IInd YEAR**

1. CLASSIFICATION OF AIDS & APPLIANCES.
2. BIOCHEMICAL PRINCIPLES IN DESIGNING OF APPLIANCES & ASSESMENT PROCEDUES FOR STATIC & DYNAMIC ALIGNMENT OF THE FOLLOWING AIDS & APPLIANCES- SPLINTS/ORTHOSES FOR SPINE AND UPPER & LOWER EXTREMITIES/PROSTHESES FOR UPPER AND LOWER LIMBS.
3. PROJECT-FOLLOWING TEMPORARY SPLINTS TO BE FABRICATED BY P.O.P/ALUMINUM STRIPS/ SHEETS/WIRES/RUBBER BANDS/REXIN/ORFIT ETC.
  - a. COCK UP
  - b. OUTRIGGER
  - c. OPPONENS SPLINT
  - d. ANTERIOR AND POSTERIOR GUARD SPLINTS
  - e. FOOT DROP SPLINT
  - f. FACIAL SPLINT
  - g. MALLET FINGER SPLINT
  - h. C BAR FOR IST WEB SPACE OF HAND

### **TEXT BOOKS:-**

1. ATLAS OF ORTHOTICS- AAOS
2. ORTHOTICS AND PROSTHETIC IN REHAB-LUSARDI

## **SUBJECT : PATHOLOGY, BIOCHEMISTRY & MICROBIOLOGY- IInd YEAR**

### 1] CELL BIOLOGY

#### I] MEMBRANE, STRUCTURE & FUNCTION

II] JUNCTION OF INTRACELLULAR ORGANELLE IN BRIEF- [NO STRUCTURAL DETAILS NEEDED]

### 2] CARBOHYDRATES

#### I] CHEMISTRY-DEFINITION, CLASSIFICATION WITH EXAMPLES

II] FUNCTIONS OF CARBOHYDRATES WITH MUCCOPOLYSACCHARIDES [IN DETAILS]

III] DIGESTION & ABSORPTION OF CARBOHYDRATES

IV] GLYCOGENESIS, GLYCOGENOLYSIS & THEIR REGULATION, CORI'S CYCLE

V] GLUCONEOGENESIS-SIGNIFICANCE OF H.M.P. SHUNT

VI] HORMONAL REGULATION OF BLOOD SUGAR, METABOLIC DISORDERS OF GLYCOGEN, LACTOSE INTOLERANCE, DIABETES MELLITUS.

### 3] PROTEINS

I] CHEMISTRY-DEFINITION, FUNCTION, CLASSIFICATION OF AMINO ACIDS, PROTEIN STRUCTURE, EFFECT OF TEMPERATURE ON PROTEINS, DENATURATION, COAGULATION, ISOELECTRIC PH & ITS IMPORTANCE

II] DIGESTION & ABSORPTION OF PROTEINS

III] METABOLISM- DE-AMINATION, TRANSMETHYLATION, TRANSAMINATION & ITS IMPORTANCE, DETOXIFICATION OF AMMONIA IN THE BODY & UREA CYCLE 28

### 4] LIPIDS

I] CHEMISTRY, DEFINITION, CLASSIFICATION OF LIPIDS & FATTY ACIDS WITH EXAMPLES & FUNCTIONS

II] DIGESTION & ABSORPTION OF LIPIDS

III] METABOLISM- BETA OXIDATION OF FATTY ACIDS & ITS ENERGETICS, KETONE BODIES FORMATION &

UTILIZATION, CHOLESTEROL & ITS IMPORTANCE [NO BIOSYNTHESIS NEEDED], CLASSIFICATION,

SOURCES & FUNCTION OF LIPOPROTEINS

IV] FATE OF ACETYL-CO A (IN BRIEF )

V] FATE OF GLYCEROL (IN BRIEF)

### 5] NUCLEIC ACIDS

D.N.A. /R.N.A.-DEFINITION, STRUCTURE & FUNCTION, CATABOLISM OF PURINE – GOUT

### 6] ENZYMES

I] DEFINITION, CLASSIFICATION, FACTORS AFFECTING ENZYME ACTION

II] CO-ENZYME & ISOENZYME WITH THEIR SIGNIFICANCE

III] INHIBITION & TYPES OF INHIBITORS

IV] CLINICAL & THERAPEUTIC USE OF ENZYMES

7] VITAMINS

- I] WATER & FAT SOLUBLE WITH DEFINITION & CLASSIFICATION
- II] INDIVIDUAL VITAMINS-SOURCES, CO-ENZYME FORMS & FUNCTIONS
- III] DAILY REQUIREMENT, ABSORPTION & TRANSPORT, DEFICIENCY & TOXICITY

8] BIOLOGICAL OXIDATION-

OXIDATIVE PHOSPHORYLATION & ETC IN BRIEF

9] MINERALS

- I] PHOSPHOROUS, CALCIUM- SOURCES, RDA, ABSORPTION, TRANSPORT, EXCRETION, FUNCTION & DISORDER
- II] FLUORIDE, IRON, ZINC, COPPER, SELENIUM, IODINE-SOURCES, RDA, ABSORPTION, TRANSPORT, EXCRETION, FUNCTION & DISORDER

10] ACID- BASE BALANCE, WATER - ELECTROLYTE BALANCE & IMBALANCE

11] HORMONES

DEFINITION, CLASSIFICATION, MECHANISM OF ACTION

12] MUSCLE CONTRACTION

- I] CONTRACTILE ELEMENTS
- II] BIOCHEMICAL EVENTS DURING CONTRACTION;
- III] ENERGY METABOLISM IN SKELETAL & CARDIAC MUSCLE

13] CONNECTIVE TISSUE

BIOCHEMISTRY OF CONNECTIVE TISSUES

14] NUTRITION

- I] IMPORTANCE OF NUTRITION, CALORIMETRY, RESPIRATORY QUOTIENT & ITS SIGNIFICANCE
- II] ENERGY REQUIREMENT WITH REFERENCE TO AGE, SEX, THERMOGENESIS, SPECIFIC DYNAMIC ACTION OF FOODS
- III] BALANCED DIET AND ROLE OF FIBERS IN DIET
- IV] NITROGEN BALANCE & ITS SIGNIFICANCE, DEFICIENCY DISORDERS (PROTEIN ENERGY MALNUTRITION)

15] CLINICAL BIOCHEMISTRY

- I] LIVER FUNCTION TEST & RENAL FUNCTION TEST
- II] RELEVANCE OF BLOOD LEVELS OF GLUCOSE, UREA, CA, PHOSPHOROUS & URIC ACID
- III] ENZYMES-AMYLASE, CPK, LDH AND ITS ISOENZYMES
- IV] LIPID PROFILE-TRI -GLYCERIDE, CHOLESTEROL (HDL, LDL, VLDL)
- V] PROTEINURIA, GLYCOSURIA

TEXTBOOKS

- 1] BIOCHEMISTRY-BY DR. DEB JYOTI DAS,
- 2] BIOCHEMISTRY-BY-DR SATYANARAYAN
- 3] TEXT BOOK OF BIOCHEMISTRY FOR MEDICAL STUDENTS BY-DR VASUDEVAN/ SHRI KUMAR

## **Pathology**

1] ACQUIRE THE KNOWLEDGE OF CONCEPTS OF CELL INJURY & CHANGES PRODUCED THEREBY IN

DIFFERENT TISSUES & ORGANS, CAPACITY OF THE BODY IN HEALING PROCESS

2] RECALL THE ETIO -PATHOGENESIS, THE PATHOLOGICAL EFFECTS & THE CLINICO-PATHOLOGICAL

CORRELATION OF COMMON INFECTIONS & NON-INFECTIOUS DISEASES

3] ACQUIRE THE KNOWLEDGE OF CONCEPTS OF NEOPLASIA WITH REFERENCE TO THE ETIOLOGY, GROSS &

MICROSCOPIC FEATURES, DIAGNOSIS & PROGNOSIS IN DIFFERENT TISSUES & ORGANS OF THE BODY

4] CORRELATE NORMAL & ALTERED MORPHOLOGY OF DIFFERENT ORGAN SYSTEMS IN DIFFERENT DISEASES NEEDED

FOR UNDERSTANDING DISEASE PROCESS & THEIR CLINICAL SIGNIFICANCE [WITH SPECIAL EMPHASIS TO NEURO-

MUSCULO-SKELETAL & CARDIO-RESPIRATORY SYSTEMS]

5] ACQUIRE KNOWLEDGE OF COMMON IMMUNOLOGICAL DISORDERS & THEIR RESULTANT EFFECTS ON THE HUMAN

BODY.

6] UNDERSTAND IN BRIEF, ABOUT THE HAEMATOLOGICAL DISEASES & INVESTIGATIONS NECESSARY TO DIAGNOSE

THEM & DETERMINE THEIR PROGNOSIS

1] A] GENERAL PATHOLOGY-

CELL INJURY-CAUSES, MECHANISM & TOXIC INJURIES WITH SPECIAL REFERENCE TO PHYSICAL, CHEMICAL &

IONIZING RADIATION

B] REVERSIBLE INJURY [DEGENERATION]-

TYPES, MORPHOLOGY, SWELLING, HYALINE, FATTY CHANGES

C] INTRA- CELLULAR ACCUMULATION-

HYALINE, MUCIN

D] IRREVERSIBLE CELL INJURY-

TYPES OF NECROSIS, APOPTOSIS, CALCIFICATION, DYSTROPHIC & METASTASIS

E] EXTRA-CELLULAR ACCUMULATION-

AMYLODOSIS, CALCIFICATION-PATHOGENESIS, MORPHOLOGY

2] INFLAMMATION & REPAIR:-

A] ACUTE INFLAMMATION-FEATURES, CAUSES, VASCULAR & CELLULAR EVENTS 39

B] MORPHOLOGIC VARIATIONS

C] INFLAMMATORY CELLS & MEDIATORS

D] CHRONIC INFLAMMATION:-CAUSES, TYPES, NON-SPECIFIC & GLAUCOMATOUS - WITH EXAMPLES

E] WOUND HEALING BY PRIMARY & SECONDARY UNION, FACTORS PROMOTING & DELAYING HEALING

PROCESS.

F] HEALING AT VARIOUS SITES-INCLUDING BONES, NERVE & MUSCLE

G] REGENERATION & REPAIR

3] IMMUNO-PATHOLOGY-[BASIC CONCEPTS]

A] IMMUNE SYSTEM:-ORGANIZATION, CELLS, ANTIBODIES, REGULATION OF IMMUNE RESPONSES

B] HYPER-SENSITIVITY

C] SECONDARY IMMUNO-DEFICIENCY INCLUDING HIV

D] ORGAN TRANSPLANTATION

4] CIRCULATORY DISTURBANCES-

A] EDEMA-PATHOGENESIS, TYPES, TRANSUDATES/EXUDATES

B] CHRONIC VENOUS CONGESTION-LUNG, LIVER, SPLEEN

C] THROMBOSIS-FORMATION, FATE, EFFECTS

D] EMBOLISM-TYPES, CLINICAL EFFECTS

E] INFARCTION-TYPES, COMMON SITES

F] GANGRENE-TYPES, AETIOPATHOGENESIS

G] SHOCK-PATHOGENESIS, TYPES, MORPHOLOGIC CHANGES

5] DEFICIENCY DISORDERS-VITAMIN A, B, C, D,

6] GROWTH DISTURBANCE

A] ATROPHY-MALFORMATION, AGENESIS, METAPLESIA, DYSPLASIA, HYPERTROPHY, HYPERPLASIA

B] NEOPLASIA, CALCIFICATION,HISTOGENESIS, BIOLOGIC BEHAVIOR, DIFFERENCE BETWEEN BENIGN & MALIGNANT TUMOR

C] MALIGNANT NEOPLASMS –GRADES, STAGES, LOCAL & DISTAL SPREAD

D] CARCINOGENESIS-ENVIRONMENTAL CARCINOGENS

E] CHEMICAL, OCCUPATIONAL, HEREDITY, VIRAL

F] PRECANCEROUS LESIONS & CA IN SITU

G] TUMOR & HOST INTERACTIONS-SYSTEMIC EFFECTS, METASTATIC OR DIRECT SPREAD OF TUMORS AFFECTING BONES, SPINAL CORD LEADING TO PARAPLEGIA ETC.

7] MEDICAL GENETICS

A) KARYOTYPIC ABNORMALITIES

B) MANDELIN DISORDERS

C) INBORN ERRORS OF METABOLISM

8] SPECIFIC PATHOLOGY:-

A] CVS

A] ARTERIOSCLEROSIS- ISCHEMIC HEART DISEASES – ANGINA, MYOCARDIAL INFARCTION-PATHOGENESIS /PATHOLOGY

B] HYPERTENSION

C] C.C.F.

D] RHEUMATIC & CONGENITAL H.D.

E] PERIPHERAL VASCULAR DISEASES

B] RESPIRATORY -

- A) OBSTRUCTIVE LUNG DISORDERS
- B) PNEUMONIA (LOBAR, BRONCHO, VIRAL & RESTRICTIVE LUNG DISORDERS)
- C] T.B.-PRIMARY, SECONDARY, MORPHOLOGIC TYPES<sup>40</sup>
- D) PLEURAL DISEASES & COMPLICATIONS
- E) RESPIRATORY FAILURE

C] NEUROPATHOLOGY

- A] REACTION OF NERVOUS TISSUE TO INJURY, INFECTION & ISCHAEMIA
- B] PYOGENIC MENINGITIS, TBM, VIRAL INFECTION
  - C] CEREBRO-VASCULAR DISEASES-ATHEROSCLEROSIS- THROMBOSIS, EMBOLISM, ANEURYSM,  
HYPOXIA, INFARCTION & HEMORRHAGE
  - D] EFFECTS OF HYPOTENSION ON CNS.
- E] COMA
  - F] POLIO MYELITIS, LEPROSY, DEMYELINATING DISEASES, PARKINSONISM, CEREBRAL PALSY, METACHROMATIC LEUCODYSTROPHY, DEMENTIA, HEMIPLEGIA /PARAPLEGIA, WILSON'S DISEASE
- G] SPACE OCCUPYING LESION
  - H] PERIPHERAL NERVE INJURY

9] MUSCLE DISEASES-

- MUSCULAR DYSTROPHY, HYPERTROPHY, PSEUDO-HYPERTROPHY, ATROPHY, POLIOMYELITIS, MYOSITIS
- OSSFICANS, NECROSIS, REGENERATION, MYOTONIA, HYPERPLASIA

10] NEURO –MUSCULAR JUNCTION-

- MYASTHENIA GRAVIS, MYASTHENIC SYNDROME, LAMBERT EATON SYNDROME

11] BONE & JOINTS-

- A] FRACTURE HEALING, OSTEOMYELITIS, RICKETS, OSTEOMALACIA, BONE TUMORS, OSTEOPOROSIS
- B] P.I.D., HAEMARTHROSIS, GOUT, T.B.
- C] ARTHRITIS- DEGENERATIVE, INFLAMMATORY, RHEUMATOID, ANKYLOSING SPONDYLITIS & TENOSYNOVITIS

12] URINARY–

- PARALYTIC BLADDER, COMMON URINARY TRACT INFECTIONS URINARY CALCULI

13] G.I. SYSTEM –

- GASTRIC/DUODENAL ULCER, ENTERIC FEVER, TB, ENTERITIS, GASTRITIS [RELATED TO CONSUMPTION OF NSAID]

- 14] ENDOCRINE-  
 THYROID FUNCTIONAL DISORDERS, DIABETES MELLITUS.
- 15] HEPATIC DISEASES- CIRRHOSIS, EMPHASIS TO SYSTEMIC EFFECTS OF PORTAL HYPERTENSION
- 16] SKIN-MELANIN PIGMENT DISORDERS- VITILIGO,  
 TENIA VERSICOLOR, PSORIASIS, BACTERIAL/FUNGAL INFECTIONS, CUTANEOUS TB, SCLERODERMA, SLE, LEPROSY, ALOPACIA
- 17] CLINICAL PATHOLOGY [INCLUDING DEMONSTRATIONS]  
 A] ANAEMIA [DEFICIENCY] T.C./D.C /EOSINOPHILIA, E.S.R., C.P.K  
 B] MUSCLE/SKIN/NERVE BIOPSY  
 C] MICROSCOPIC APPEARANCE OF MUSCLE NECROSIS, FATTY INFILTRATION  
 D] LAB INVESTIGATION IN LIVER & RENAL FAILURE

### **TEXT BOOKS**

- 1] TEXT BOOK OF PATHOLOGY-BY HARSH MOHAN  
 2] PATHOLOGIC BASIS OF DISEASE BY COTRAN, KUMAR,ROBBINS  
 3] GENERAL PATHOLOGY –BY BHENDE

### **Microbiology**

- 1] GENERAL MICROBIOLOGY-  
 INTRODUCTION & SCOPE
- 2] CLASSIFICATION OF MICROORGANISMS & MORPHOLOGY OF BACTERIA
- 3] STERILIZATION & DISINFECTION –[BASIC CONCEPTS]  
 HOSPITAL ACQUIRED INFECTION, UNIVERSAL SAFETY PRECAUTIONS AND WASTE DISPOSAL
- 4] IMMUNOLOGY  
 I] ANTIGEN-ANTIBODY—REACTION & APPLICATION FOR DIAGNOSIS  
 II] IMMUNE RESPONSE- NORMAL/ABNORMAL  
 III] INNATE IMMUNITY & ACQUIRED IMMUNITY [VACCINATION]  
 IV] HYPER-SENSITIVITY & AUTO-IMMUNITY
- 5] LABORATORY DIAGNOSIS OF INFECTION
- 6] BACTERIOLOGY  
 I] INFECTION CAUSED BY GRAM +VE COCCI ;GAS GANGRENE, CLOSTRIDIUM, DIPHTHERIA  
 II] INFECTION CAUSED BY GRAM –VE COCCI, SEPTICEMIA, CHOLERA, SHOCK, TYPHOID & DIARRHOEA  
 III] MYCOBACTERIAL INFECTION- TUBERCULOSIS, LEPROSY, ATYPICAL MICROBACTERIUM  
 IV] SYPHILIS-MORPHOLOGY & PATHOGENESIS [VDRL]

7] VIRUSES

I] INTRODUCTION & GENERAL PROPERTIES,

II] HIV

III] HEPATITIS

IV] POLIO, MEASLES, CONGENITAL VIRAL INFECTIONS, RUBELLA, CMV, HERPES

8] MYCOLOGY

MYCETOMA, ASPERGILLOSIS & CANDIDIASIS 42

9] PARASITES AFFECTING C.N.S

MALARIA, FILARIA, TOXOPLASMA, CYSTISARCOSIS & ECHINOCOCCUS

10] APPLIED MICROBIOLOGY

AS RELEVANT TO DISEASES INVOLVING BONES, JOINTS, NERVES, MUSCLES, SKIN, BRAIN,  
CARDIOPULMONARY SYSTEM & BURNS

**TEXT BOOKS**

1. TEXTBOOK OF MICROBIOLOGY-BY R. ANANTHNARAYAN & C.K.JAYRAM PANNIKER.
2. TEXTBOOK OF MICROBIOLOGY – DR. BAWEJA
3. TEXTBOOK OF MICROBIOLOGY – DR. D.R.ARORA

## **SUBJECT:- PHYSIOTHERAPY-II (EXERCISE & MECHANOTHERAPY)-IIND YEAR**

### 1] GENERAL BIOMECHANICS

FORCE – ANALYSIS OF FORCE

MECHANICS OF POSITION-GRAVITY, CENTER OF GRAVITY, LINE OF GRAVITY, BASE, EQUILIBRIUM, FIXATION & STABILISATION

MECHANICS OF MOVEMENTS -AXES & PLANES, SPEED, VELOCITY, WORK, MECHANICAL ADVANTAGE, ENERGY, POWER, ACCELERATION, MOMENTUM, INERTIA & FRICTION

SIMPLE MACHINE -

A) LEVERS – TYPES & USES, ANGLE OF PULL

B) PULLEYS- TYPES & USES

C) PENDULUM 31

D) ELASTICITY - SPRINGS

TYPES OF MUSCLE WORK

### 2] STARTING & DERIVED POSITIONS

DESCRIPTION OF POSITION, MUSCLE WORK & EFFECTS & USES.

### 3] MOVEMENT

CLASSIFICATION, PRINCIPLES, TECHNIQUES & USES.

### 4] RANGE OF MOTION

GONIOMETRY (TECHNIQUE, USES & TYPES OF GONIOMETER )

5] LIMB LENGTH MEASUREMENT (ONLY LOWER LIMB - APPARENT, TRUE, SUPRA-TROCHANTERIC) & GIRTH MEASUREMENTS

6] ASSESSMENT OF SENSATIONS & REFLEXES, BLOOD PRESSURE, PULSE RATE, RESPIRATORY RATE & CHEST EXPANSION.

### 7] RELAXATION-

PRINCIPLES, METHODS & EFFECTS/ USES

### 8] MASSAGE MANIPULATIONS-

PRINCIPLES, CLASSIFICATION, EFFECTS, MERITS, DEMERITS, SKILLS ON EXTREMITIES, SCALP, SPINE, ABDOMEN, FACE.

### 9] THERAPEUTIC GYMNASIUM-

SUSPENSION THERAPY- PRINCIPLES, TYPES, TECHNIQUE & USES, USE OF ACCESSORIES SUCH AS PULLEYS, SPRINGS, SHOULDER WHEEL, FINGER LADDER, THERAPEUTIC BALL, PARALLEL BARS, WALL BAR ETC WITH APPLIED BIOMECHANICAL PRINCIPLES.

### 10] GROUP EXERCISES & RECREATIONAL ACTIVITIES

PRINCIPLES, MERITS & DEMERITS.

### 11] GENERAL FITNESS EXERCISES-

PRINCIPLES & TECHNIQUE (WARM UP-STRETCHING -MOBILITY- STRENGTHENING – COOL DOWN)

12] YOGA

PRINCIPLES OF YOGA, BASIC YOGIC POSTURES & THEIR PHYSIOLOGICAL EFFECTS

A] IN STANDING POSITION

A] PDAHASTASANA /PADANGUSTHANASANA

B] TRIKONASANA

C] UTKATASANA

D] TADASANA

B] IN SITTING POSITION

A) PADMASANA /SIDDHASANA/SUKHASANA

B) PASCHIMOTTANASANA

C) YOGAMUDRASANA

D) VIRASANA,

E) VAJRASANA

F) GOMUKHASANA

C] IN SUPINE LYING POSITION

A) ARDHA HALASANA / HALASANA

B) SETU BANDHASANA

C) PAVAN-MUKTASANA

D) SARVANGASANA

E) SHAVASANA

D] IN PRONE POSITION

A) BHUJANGASANA

B) ARDHA- SHALABHASANA / SHALABHASANA

C) DHANURASANA

D) NAUKASANA 32

13] HYDROTHERAPY

PRINCIPLES, DESCRIPTION OF THE TANK, APPLICATION, EFFECTS, INDICATIONS & CONTRAINDICATIONS

**TEXT BOOKS**

1] PRINCIPLES OF EXERCISE THERAPY--DENA GARDINER

2] MASSAGE- HOLLEY & COOK

3] PRACTICAL EXERCISE THERAPY--MARGARET HOLLIS

4] MEASUREMENT OF JOINT MOTION: A GUIDE TO GONIOMETRY--CYNTHIA NORKINS

5] MEASUREMENT OF PHYSICAL FUNCTION - CYNTHIA NORKIN

## **SUBJECT:-PHYSIOTHERAPY-I (ELECTROTHERAPY)-IIND YEAR**

### 1] PHYSICS AND BASIC ELECTRICAL COMPONENTS

- A) CONDUCTORS & INSULATORS, STATIC ELECTRICITY- ELECTRIC FIELD, POTENTIAL DIFFERENCE & CAPACITANCE. CURRENT ELECTRICITY – E.M.F., OHM’S LAW, THERMAL EFFECTS OF ELECTRICAL CURRENTS. MAGNETISM – PROPERTIES OF MAGNET, ELECTROMAGNETIC INDUCTION, LENZ’S LAW
- B) RHEOSTAT- TYPES, POTENTIOMETER, AMMETER, OSCILLOSCOPE, TRANSFORMER -TYPES,CAPACITOR, INDUCTOR, THERMIONIC VALVES, TRANSISTORS, PULSE GENERATOR – ASTABLE MULTIVIBRATOR
- C) MAINS SUPPLY – FUSE, PLUG, SWITCH, WIRING OF THE HOUSE, DYNAMO. SHOCK – TYPES, EFFECTS, PRECAUTION & TREATMENT<sup>34</sup>

### 2] CELLULAR BIOPHYSICS

RECEPTION & EMISSION OF E.M.F. SIGNALS

### 3] E.M. SPECTRUM

WAVELENGTH, VELOCITY & FREQUENCY. LAWS GOVERNING RADIATION.

### 4] FUNDAMENTALS OF LOW FREQUENCY CURRENTS

- I] TYPES OF CURRENTS
- II] CHARACTERISTICS OF CURRENTS – PULSE- TYPES OF PULSES, PHASE, WAVEFORM, INTERPULSE INTERVAL & FREQUENCY
- III] TYPES OF ELECTRODES, GALVANIC SKIN RESISTANCE –SIGNIFICANCE & METHODS TO REDUCE GSR

### 5] FUNDAMENTALS OF HIGH FREQUENCY CURRENTS—

- I] OSCILLATOR CIRCUIT, PULSE GENERATOR, CIRCUIT OF SHORT WAVE DIATHERMY
- II] PHYSICAL PRINCIPLES, COMPONENTS OF PANEL, TESTING OF APPARATUS – SHORT WAVE DIATHERMY, ULTRA-SONIC, ULTRA VIOLET RAYS, INTERFERENTIAL THERAPY, LASER (ONLY PHYSICAL PRINCIPLES & TYPES)
- III] HAZARDS OF ENVIRONMENTAL CURRENTS

### 6] BIOPHYSICS OF SUPERFICIAL HEAT

PHYSICAL PRINCIPLES, COMPONENTS OF PANEL, PHYSIOLOGICAL EFFECTS, THERAPEUTIC EFFECTS/USES,

MERITS & DEMERITS, INDICATIONS & CONTRA-INDICATIONS, SKILLS OF APPLICATION-

- I] PARAFFIN WAX BATH,
- II] WHIRL POOL,
- III] CONTRAST BATH
- IV] HYDRO-COLLATOR / HOT PACKS
- V] INFRA RED
- VI] HOME REMEDIES

### 7] CRYOTHERAPY

PHYSIOLOGICAL EFFECTS, THERAPEUTIC EFFECTS/USES, MERITS & DEMERITS, INDICATIONS & CONTRAINDICATIONS, SKILLS OF APPLICATION.

**PRACTICALS**

- 1] PANEL DIAGRAMS-IDENTIFICATION OF COMPONENTS, TESTING THE MAINS SUPPLY & MACHINES
- 2] SKILLS OF APPLICATION OF SUPERFICIAL THERMAL AGENTS & CRYOTHERAPY

**TEXT BOOKS**

- 1] CLAYTON'S ELECTRO THERAPY – KITCHEN-3RD ED
- 2] CLAYTON'S ELECTRO THERAPY – KITCHEN-10TH ED
- 3] ELECTRO THERAPY EXPLAINED –BY LOW & REED
- 4] ELECTROTHERAPY : EVIDENCE BASED PRACTICE- KITCHEN 11

## **SUBJECT:-ORTHOPAEDICS – IIND YEAR**

- 1] POST TRAUMA PATHOLOGY, CLINICAL MANIFESTATIONS, HEALING PROCESS IN BONE & INTRA ARTICULAR & EXTRA ARTICULAR SOFT TISSUES.
- 2] FRACTURES & DISLOCATIONS OF UPPER EXTREMITY & LOWER EXTREMITY
  - I) CLASSIFICATION
  - II) CONSERVATIVE TREATMENT
  - III) SURGICAL INTERVENTION -
    - A) SURGICAL APPROACH
    - B) SOFT TISSUE SECTION / REPAIR
    - C) INTERNAL / EXTERNAL FIXATION / ARTHROPLASTY
    - D) POST OPERATIVE COMPLICATIONS E) POST OPERATIVE MANAGEMENT & MANAGEMENT OF COMPLICATIONS
- 3] FRACTURES & DISLOCATIONS OF SPINE, FRACTURES OF THORACIC CAGE, SHOULDER GIRDLE & PELVIS
  - I) CONSERVATIVE TREATMENT
  - II) SURGICAL INTERVENTION -
    - A) SURGICAL APPROACH
    - B) SOFT TISSUE SECTION / REPAIR
    - C) INTERNAL / EXTERNAL FIXATION / ARTHROPLASTY
    - D) POST OPERATIVE COMPLICATIONS
    - E) POST OPERATIVE MANAGEMENT & MANAGEMENT OF COMPLICATIONS
- 4] MANAGEMENT OF METABOLIC DISORDERS
  - A) OSTEOPOROSIS
  - B) OSTEOMALACIA
- 5] BRACHIAL PLEXUS / LUMBO SACRAL PLEXUS & PERIPHERAL NERVE INJURIES – SITES, MANAGEMENT
- DEFORMITIES OF THE SPINE – SCOLIOSIS / KYPHOSIS
- 7] DEFORMITIES OF EXTREMITIES LIKE VARUS / VALGUS, TORSION, DEFORMITIES OF HANDS & FEET
- 8] CONGENITAL MALFORMATION LIKE CTEV, CDH ETC.
- 9] VASCULAR DISORDERS LIKE AVASCULAR NECROSIS, PERTHE'S DISEASE, COMPARTMENTAL SYNDROME
- 10] RECONSTRUCTIVE SURGERY FOR BONE LENGTHENING
- 11] RECONSTRUCTIVE SURGERY IN POLIO & CEREBRAL PALSY
- 12] INFLAMMATORY/INFECTIOUS DISEASES OF THE BONE & JOINTS  
E.G..T.B.,OSTEOMYELITIS
- 13] TUMORS OF BONE & MANAGEMENT
- 14] SURGICAL INTERVENTION FOR ARTHRITIS LIKE O.A, RA, ANKYLOSING SPONDYLITIS
- 15] RECONSTRUCTIVE SURGERY IN SOFT TISSUE LESIONS OF SHOULDER, KNEE & ANKLE
- 16] AETIOLOGY OF BACK PAIN & SURGICAL MANAGEMENT
- 17] COMMON SPORTS INJURIES / OVERUSE INJURIES & MANAGEMENT
- 18] TRAUMATIC AMPUTATION & MANAGEMENT

19] HAND INJURY & MANAGEMENT  
20] X-RAYS OF EXTREMITIES & SPINE

CLINICAL-

EVALUATION & PRESENTATION OF

- A] ONE ACUTE SOFT TISSUE LESION [INCLUDING NERVE INJURY]
- B] 2 CASES OF DEGENERATIVE ARTHRITIS OF EXTREMITY JOINT
- C] 2 DEGENERATIVE ARTHRITIS OF SPINE
- D] ONE CASE OF ACUTE P.I.D
- E] 2 CHRONIC BACKACHES
- F] 1 POST OPERATIVE CASE OF FRACTURES OF EXTREMITIES
- G] ONE TRAUMATIC PARAPLEGIA /QUADRIPLEGIA

OBSERVATION-

AT LEAST 2SURGERIES OF # INTERNAL FIXATION, ONE KNEE/HIP REPLACEMENT &RE-  
CONSTRUCTIVE SURGERY  
OF THE TENDONS

### **TEXTBOOKS**

1. OUTLINE OF FRACTURES - ADAMS
2. OUTLINE OF ORTHOPAEDICS - ADAMS
3. SYSTEM OF ORTHO - APLEY
4. ESSENTIALS OF ORTHOPAEDICS FOR PHYSIOTHERAPISTS- JOHN EBNEZAR
5. ESSENTIAL ORTHOPAEDICS – MAHESHWARI

**SUBJECT:-GENERAL MEDICINE-IIND YEAR**

- 1] DISORDERS OF ENDOCRINE SYSTEM
  - I) DIABETES
  - II) THYROID, PITUITARY & ADRENAL CONDITIONS
  - III) CALCIUM METABOLISM
- 2] DEGENERATIVE / RHUMATOLOGICAL CONDITIONS
  - I) RHEUMATOID ARTHRITIS
  - II) OSTEO ARTHRITIS
  - III) S L E
  - IV) S S A
  - V) GOUT
  - VI) POLYMYOSITIS
- 3] GERIATRIC CONDITIONS
  - I) AGING PROCESS & ALZHEIMER'S DISEASE
  - II) OSTEOPOROSIS
  - III) GENERAL HEALTH CARE, WELLNESS CLINIC
- 4] NUTRITION DEFICIENCY DISEASES
- 5] DRUG ABUSE / INTOXICATION

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