



DIPLOMA IN PHYSIOTHERAPY

DURATION :2 YEARS

ELIGIBILITY : 10TH PASS

DPT			
S.NO	PAPER CODE	NAME OF PAPERS	CREDIT
1 ST YEAR			
1	101	HUMAN ANATOMY	4
2	102	HUMAN PHYSIOLOGY	4
3	103	FUNDAMENTALS OF KINESIOLOGY & KINESIOTHERAPY	4
4	104	ENGLISH COMMUNICATION & SOFT SKILLS	3
5	105	GENERAL MICROBIOLOGY	4
6	106	FUNDAMENTALS OF ELECTROTHERAPY	4
7	107	COMPUTER FUNDAMENTALS	3
8	108	PRACTICAL-I	3
9	109	CLINICAL TRAINING-I	2
2 ND YEAR			
1	201	GENERAL PATHOLOGY	4
2	202	GENERAL BIOCHEMISTRY	4
3	203	GENERAL PHARMACOLOGY	4
4	204	ENVIRONMENTAL SCIENCE	2
5	205	EXERCISE THERAPY-I	4
6	206	ELECTROTHERAPY-I	4
7	207	BASIC NURSING AND FIRST AID	4
8	208	PRACTICAL -II	3
9	209	CLINICAL TRAINING-II	2

101 HUMAN ANATOMY

Unit -1

Terminology and General Plan of the Body, Body Parts and Areas,
Terms of Location and Position, Body Cavities and Their Membranes, Dorsal cavity, Ventral cavity,
Planes and Sections

Unit -II

Cells: Structure, function and location, Prokaryotic and eukaryotic cells, Cell organelles, Cell division
Tissue, Types, Structure, Location and Function of Epithelial Tissue, Connective Tissue, Muscle
Tissue, Nerve Tissue, Membranes, Glandular tissue
The Integumentary System: structure and function of The Skin, Subcutaneous Tissue

Unit-III

Musculoskeletal System: Basic anatomy of important muscles and bones

Unit-IV

Respiratory system: Basic anatomy of nose, larynx, trachea, bronchi and lungs

Unit - V

Digestive system: basic anatomy of oesophagus, stomach, small intestine, large intestine, liver, gall bladder, pancreas

102 HUMAN PHYSIOLOGY**Unit-I**

Cell physiology: Structure, membrane, transport across cell membrane, Active, Passive, Organization of the Body, Body Composition, Body Fluid Volumes and its measurement, Diffusion, Osmosis, Tonicity, Homeostasis

Unit-II

Blood-composition, function, cellular component & their function, haemoglobin & anaemia, blood groups and coagulation

Lymphatic system-Composition & function of lymph, lymphatic tissue, Immunity with the role of thymus

Unit-III

Cardiovascular system-general arrange, heart, arteries, veins and capillaries, heart structure and function, cardiac cycle, heart sounds, heart rate, blood pressure, mechanism of circulation, definition of hypertension & shock

Unit-IV

Respiratory system: parts of respiratory system, mechanism of respiration, pulmonary function, pulmonary circulation, lungs volume, Gas transport between lungs and tissues, Definition of hypoxia, dyspnoea, cyanosis, asphyxia and obstructive airways diseases

Unit- V

Gastrointestinal physiology: Organs of GIT and their structure & function, secretion, digestion, absorption and assimilation, gastrointestinal hormones, physiology of digestion of carbohydrates, proteins & lipids, Structure & function of liver, spleen, gall bladder & pancreas, Jaundice, Cirrhosis & Pancreatitis

103 FUNDAMENTALS OF KINESIOLOGY & KINESIOTHERAPY**Unit- I****BIO-PHYSICS RELATED TO KINESIOTHERAPY**

a. Starting Positions & Derived Positions

i. Application of stabilityii. BOS, Gravity and muscle work in relation to various positions

b. Therapeutic Gymnasium

i. Use of accessories such as Pulleys Springs, Shoulder wheel, Walking aids,

ii. Finger ladder, Therapeutic balls, Weights, Resistance bands, tubes, & wands

iii. Applied mechanics of all above accessories

c. Suspension Therapy

i. Principlesii. Suspension Apparatus iii. Types of Suspension iv. Effects and uses v. Techniques for individual joints

Unit-II**CLASSIFICATION OF MOVEMENTS**

a. Definition and classificationb. Principles of movementsc. Effects, uses and Techniques (active: assisted, free, assisted-resisted, resisted & passive)

Unit-III

BASIC EVALUATION

a. Assessment of Vital Parameters

i. Temperature ii. Blood Pressure iii. Heart Rate/ Pulse rate iv. Respiratory Rate v. Chest expansion

b. Assessment of Sensations and Reflex testing,

c. Goniometry

i. Definition and Types of Goniometers ii. Principles iii. Techniques for individual joints with biomechanical principles iv. Uses

Unit-IV

MASSAGE

a. Definition b. Classification c. Principles d. Effects & uses e. Indications and contra indications

f. Techniques-Upper limb, Lower Limb, Neck, Back, Abdomen, Face & Scalp

Unit-V

RELAXATION

a. Principles, b. Techniques along with their effects & uses

i. General -Jacobson's, Shavasana & Reciprocal (Laura Mitchell)

ii. Local -Heat, Massage, Gentle/Rhythmic passive movements

104 ENGLISH COMMUNICATION & SOFT SKILLS

UNIT-I: Introduction to English language

a) Role and significance of English language in the present scenario

b) English Language: Its relevance for the Indian industry

c) Introduction to Listening, Speaking, Reading, Writing (LSRW) and benchmarking of the class

[Note: As part of classroom activity, a guest lecture from an industry representative/Director (CRC) and maintaining progress card for each student on LSRW for future reference]

UNIT-II: Phonetics & Functional Grammar

a) Pronunciation and daily usage correction (speak with differences between p/b, s/sh, f/ph, t/d, v/w sounds)

b) Parts of speech, articles, tenses, verbs and modals

c) Practice of daily use words, numerals and tongue twisters

d) Vocabulary building, Construction of simple sentences: Basic sentence pattern, subject and Predicate

[Note: As part of classroom activity, language games, tongue & jaw exercises, simple passages from the newspapers for oral drills in the classroom and practice tests (written and oral)]

UNIT-III: English Communication- About Myself

a) Let's talk, making conversation, meeting and greeting

b) Introducing myself, my family and my friends

c) My opinions, my likes and dislikes

d) Life at college, hostel and workplace

[Note: As part of classroom activity, use the Workbook for reference for classroom and home assignments, carry out practice tests (written and oral)]

UNIT-IV: Personality Development

a) First impression: Dressing sense, good manners, speaking well and respectably

b) Positive Attitude: Being happy and alert, a good listener and a good friend

c) Consultation among peers: Soliciting advice and giving advice

d) Goal setting, confidence building & handling rejection

[Note: As part of classroom activity, refer Workbook for classroom and home assignments, carry out practice tests (written and oral)]

105 GENERAL MICROBIOLOGY

Unit-I

Development of microbiology as a discipline, Contributions of Anton von Leeuwenhoek, Louis Pasteur, Robert Koch, Joseph Lister, Alexander Fleming, Edward Jenner

Introduction to bacterial taxonomy, Classification of Bacteria, Morphology based on size, shape, arrangement, motility, flagella, spores, capsules, cell wall, plasma membrane, pili, ribosomes.

Unit-II

Microscopy: Study of compound microscope – magnification, numerical aperture, resolution and components of microscope. Dark ground illumination, care of microscope and common difficulties micrometry. Bright Field Microscope, Dark Field Microscope, Phase Contrast Microscope, Fluorescence Microscope, Transmission Electron Microscope, Scanning Electron Microscope

Unit-III

Cell size, shape and arrangement, cell-wall, composition and detailed structure of Gram-positive and Gram-negative cell walls, Cell Membrane: Structure, function and chemical composition of bacterial cell membranes. Cytoplasm: Ribosome, mesosomes, inclusion bodies, nucleoid, chromosome and plasmids, Endospore: Structure, formation

Unit-IV

General safety measures used in Microbiology laboratory, Sterilization and disinfection: Various physical methods of sterilization – heat, UV radiation, ionizing radiation, filtration, characters affecting sterilization, auto clave control and sterilization indicators.

Biomedical waste management in a Medical Microbiology laboratory: Types of the waste generated, Segregation, Treatment, Disposal

Unit-V

Antiseptics & Disinfectants: Definition, types and properties, mode of action, use, qualities of good disinfectants

Chemical disinfectants – phenol and its compounds, alcohol, halogen, heavy metals and quaternary ammonium compounds, aldehyde, gaseous compound. use and abuse of disinfectants. precautions while using the disinfectants.

106 FUNDAMENTALS OF ELECTROTHERAPY

Unit-I

Fundamentals of Low frequency currents

i. Basic Physics:

Structure of atom, Isotopes, States of matter; Compound formation-(covalent formation), Properties of Electric lines of forces, Conductors, Non-conductors, Latent heat, Transmission of heat

ii. Condenser

a) Principles b) Capacity c) Types & construction d) Electric field e) Charging and discharging of the condenser f) Duration of Discharge g) Discharge through inductance h) Capacitive reactance & uses of condenser

iii. Main supply:

a) Production of Electricity b) Types: A.C./D.C. c) Distribution/ Grid system wiring of the house, colour coding of electrical supply to the apparatus d) Earthing and its importance e) Types of Plugs & Switches

iv. Shock

a) Definition b) Types (Electric Shock & Earth shock) c) Severity Causes, Effects & Precaution

v. Static Electricity:

a) Theory of Electricity b) Production of Electric Charge c) Characteristics of charged electrical body and capacitor and inductance: types & uses d) Potential difference

vi. Current electricity

a) EMF b) Resistance: Combination of resistance in series and parallel c) Ohms Law d) D.C., A.C. e) Devices for regulating current: Identification, functioning & Uses-Rheostat, Potentiometer, Ammeters, Oscilloscopes, Voltmeter f) Voltage and Power g) Thermal effects of electric current-Joule's Law.

vii. Electrical Skin Resistance:

a) Skin Resistance b) Factors affecting Skin resistance: types of electrodes used, electrode gels, skin threshold, skin type, skin temperature, exercises c) Methods to reduce skin resistance

- viii. Faradic currents: Duration, frequency, wave forms & graphical representation, surging, faradic type current, pulse width modulation,
- ix. Galvanic currents/ Direct current:and interrupted galvanic current, duration, frequency, waveforms& graphicalrepresentation

Unit II

b. Fundamentals of High frequency currents

i. Electro Magnetic Induction:

- a) Production b) Direction of induced EMF c) Strength of induced EMF d) Type –Self & Mutual induction e) Inductive Reactance f) Eddy currents g. Principles and Laws –Faraday’s , Lenz’s

h. Dynamo

ii. Apparatus for Modification of Currents:

- a) Interruption of current –Switch & Valve b) C-R timing circuit c) Multivibrator Circuit, Pulse Generator d) Current supplied to patient –Impulse type

iii. Magnetism:

- a) Nature and Types b) Molecular theory of Magnetism c) Property of Magnet d) Magnetic effect of electric current –Electro Magnets e) Meters for measuring A.C.

iv. Sound:

- a) Wave motion in sound b) Infrasonics c) Normal hearing band d) Characteristics of sound waves and their velocities e) Ultrasonics f) Reflection, Refraction and Attenuation of Sound waves
- g) Interference of sound waves

v. D.C. and A.C.:

- a) Source –Cell and rectified AC b) Rectification of AC c) Thermionic valves –Diode and Triode
- d) Metal Rectifier e) Types of Rectification f) Transformers-Types & Functions g) Smoothing circuit h) Semiconductor and its types i) Diodes & Transistors j) Choke coil

Unit-III

c. Electro Magnetic Spectrum

i. Laws of transmission Reflection –Refraction –Absorption –Attenuation

ii. Electro Magnetic Radiation iii. Laws Governing E.M.R. iv. Laws of Reflection, Refraction, Absorption, Attenuation, Cosine Law, Inverse Square Law, Grothus Law

Unit-IV

2.ELECTRICAL MODALITIES

Production, Physical principles, Panel diagrams, Testing of apparatus of the following:

- a. S.W.D.,b. Ultrasound,c. U.V.R.,d. I.F.T.,e. I.R. ,f. LASER (no panel diagram)
- g. Diagnostic Electrical Muscle Stimulator, h. T.E.N.S.

Unit- V

1.SUPERFICIAL THERMAL AGENTS

Construction/Design of the Modalities, Scales of temperature,Specific heat & modes of energy transfer, Physiological effects, Therapeutic effects/ Uses, Merits/demerits, Indications/contra-indications, Skills of application:

- a. Home remedies ,b. Paraffin wax bath, c. whirl pool ,d. contrast bath ,e. Hydro-collator hot packs
- f. Cryotherapy

107 COMPUTER FUNDAMENTALS

Unit-I

Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages. Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).

Processor and memory: The Central Processing Unit (CPU), main memory. Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.

Unit-II

Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with

folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).

Unit-III

Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.

Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.

Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.

Unit-IV

Introduction of Operating System: introduction, operating system concepts, types of operating system, Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.

Electronic Payment Systems: Introduction, Types of Electronic Payment Systems, Digital Token-Based, Electronic Payment Systems, Smart Card and Electronic Payment Systems, Credit Card- Based Electronic Payment Systems, Risk and Electronic Payment Systems.

Unit-V

Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet.

108 PRACTICAL-I

Practical Human Anatomy

1. Demonstration of Major organs through models and permanent slides.
2. Demonstration of parts of circulatory system from models.
3. Demonstration of parts of respiratory system from models.
4. Demonstration of digestive system from models.
5. Demonstration of excretory system from models.
6. Demonstration of nervous system from models.
7. Structure of eye and ear
8. Demonstration of structural differences between skeletal, smooth and cardiac muscles.
9. Demonstration of various bones
10. Demonstration of various joints
11. Demonstration of various parts of male & female reproductive system from models

Practical Human Physiology

1. To measure pulse rate
2. To measure blood pressure
3. Demonstration of ECG
4. To perform Hemoglobin by Sahli's Method
5. To perform Hemoglobin by CMG method.
6. Haemoglobin by CMG method.
7. To perform Total RBC count.
8. To perform total leucocyte count.
9. To perform differential leucocyte count.
10. To perform PCV
11. To calculate Red cell indices.

Practical fundamentals of kinesiology & kinesiotherapy

1. Various starting and derived positions
2. The techniques of active, passive, assisted and resisted movements
3. The techniques of various accessories and equipments used in therapeutic gymnasium its biomechanical principles and uses.
4. The techniques of use of suspension method for assisted and resisted movements

5. Relaxation procedures
6. Massage techniques
7. Yogasanas and Pranayama
8. Aerobic exercise for self and others
9. Assessment of vital parameters in different body position (supine, sitting and standing) and of sensory system and reflexes.
10. Measurement of joint R.O.M. throughgoniometry, method of fixation and measurement.

Fundamentals of Microbiology

1. Demonstration of Microscope and its parts
2. Demonstration of glassware used in microbiology.
3. Demonstration of autoclave and sterilization of glass wares.
4. Demonstration of Hot air oven and sterilization of glass wares.
5. To perform Gram staining
6. To perform Acid fast staining (Zeihl Neelsen staining)
7. To perform Indian ink staining
8. To perform Hanging drop method
9. Demonstration of capsule
10. Staining of bacterial spores
11. To demonstrate agglutination reaction.
12. To perform RA test
13. To perform WIDAL test
14. To perform RPR test.
15. To perform CRP test.

Practical Fundamentals of Biochemistry

1. Various ELECTRICAL COMPONENTS like Diodes & Triodes, Rheostat, Capacitor, Potentiometer, Switches, Plugs and Pulse generator
2. The technique of testing of mains supply
3. The techniques of testing the following ALONG WITH PANEL DIAGRAM:
 - i. Low Frequency currents-Diagnostic Muscle stimulator, Transcutaneous Nerve Stimulation
 - ii. Medium Frequency currents-I.F.T.
 - iii. High Frequency currents-Short Wave Diathermy, Ultrasound
 - iv. I.R. (no panel diagram)
 - v. U.V.R. (no panel diagram)
 - vi. LASER (no panel diagram)
4. The skill of application of THERMAL AGENTS (on models) :
 - i. Hot packs
 - ii. P.W.B.
 - iii. Whirlpool
 - iv. Contrast bath
 - v. Cryotherapy

Practical: Basics of Computer

Computer fundamental and internet lab

1. Using basic DOS commands.
2. Using external DOS commands
3. Creating a email account
4. Using web browser for searching and surfing.
5. Creating and formatting a document in MS office
6. Using autocorrect, auto text and spell check operation in MS office .
7. Create tables in MS Word.
8. Inserting different kinds of object in MS word.
9. Use main merge options in MS office.
10. Create a Excel work sheet with following options rows and columns alignment..
11. Using excel formulas.
12. Create a graph with available data in MS excel.
13. Create a PPT presentation using auto content wizard.

14. Use Clip art animation effects and word art galleries in presentations.
15. Using transition and setting timings for slide show.
16. Use MS access to create data base and tables.

109 CLINICAL TRAINING-I

201 GENERAL PATHOLOGY

Unit I

Introduction & History of pathology, Basic definitions and familiarization with the common terms used in pathology, Causes and mechanisms of cell injury, reversible and irreversible injury, Introduction of hyperplasia, hypoplasia, hypertrophy, atrophy, metaplasia, necrosis and apoptosis

Unit II

General features of acute and chronic inflammation: Vascular changes, cellular events, Cells and mediators of inflammation, Phagocytosis and its mechanism

Unit III

Tissue Renewal and Repair, healing and fibrosis, cirrhosis, introduction of oedema, hyperaemia, congestion, haemorrhage, haemostasis, thrombosis, embolism, infarction, shock and hypertension.

Unit IV

Protein energy malnutrition, deficiency diseases of vitamins and minerals, nutritional excess and imbalances. Role and effect of metals (Zinc, Iron and Calcium) and their deficiency diseases, Aetiology and pathophysiology of diabetes, arteriosclerosis, myocardial infarction, respiratory diseases (COPD), Parkinson disease

Infectious Diseases: pathogenesis & overview of modes of infections, prevention and control with suitable examples like Typhoid, Dengue

Unit V

Cancer: Definitions, nomenclature, characteristics of benign and malignant neoplasm, metastasis, Carcinogens and cancer, concept of oncogenes, tumour suppressor genes, DNA repair genes and cancers stem cells.

Learning Outcome: This curriculum will provide an introductory nature and build the concepts of how human system work in altered and diseased stage under the influence of various internal and external stimuli to the students.

202 GENERAL BIOCHEMISTRY

UNIT-I

Nutrition: RDA, BMR, SDA, caloric requirement and balanced diet.

Carbohydrates: Definition, classification and general functions. Carbohydrate

Metabolism - Glycolysis, T.C.A cycle.

UNIT-II

Lipids: Definition, classifications and general functions. Essential fatty acids and their importance, Cholesterol, Lipoproteins. Metabolism-b-Oxidation of fatty acids, fatty liver and ketosis.

Amino Acids : Definition, classification, essential and non essential aminoacids.

UNIT-III

Proteins: Definition, classification, and Bio-medical Importance. Metabolism:

Formation and fate of ammonia, Urea cycle and its significance.

Study of hemoglobin and myoglobin with their functions.

UNIT-IV

Enzymes: Definition, classification with examples, Factors affecting enzyme action, isoenzyme and co-enzyme, Clinical importance of enzymes.

Biochemistry of connective tissue - Introduction, various connective tissue proteins : collagen, elastin- structure and associated disorders.

UNIT-V

Vitamins: Definition, classification and functions, dietary source, daily requirement

and deficiency disorders.
Diabetes mellitus - definition, types & causes.

203 GENERAL PHARMACOLOGY

Unit -I

GENERAL PHARMACOLOGY

• Definition & classification of drugs • Pharmacokinetics & pharmacodynamics • Broad categories of adverse reaction • Alcohols • Analgesics and antipyretics • Anti inflammatory drugs • Sedatives
• Stimulants • Drug acting on muscle -Muscle relaxant, Muscle stimulant • Anti Parkinsonian agent
• Drug modifying B P • Hypo lipidemia • Anti coagulants • Thyroxin and anti thyroid drugs • Anti diabetics • Glucocortics • Calcium, phosphorus, calcitonin, parathormone • Narrow spectrum antibiotics • Anti-cancer drugs • Disease modifying drugs

Unit-II

DRUGS ACTING ON RESPIRATORY SYSTEM

• Respiratory stimulant • Respiratory depressants • Bronchodilators • Expectorants • Anti-asthmatic
• Antitussive

Unit -III

DRUGS ACTING ON CARDIOVASCULAR SYSTEM

• Anti-ischaemic drugs • Antiarrhythmic drugs • Drugs in heart failure • Anti-hypertensive drugs

Unit-IV

VITAMINS

HORMONES

• Ovarian hormones • Anabolic steroids • Estrogen • Progesterone • Androgen

Unit-V

LOCALLY ACTING DRUGS

• Local anesthetic drugs • Counter irritant • Rubefacient • Soothing agent • Anti microbial

DRUGS AND EXERCISE

DRUGS ACTING ON NERVOUS SYSTEM

• Antispasticity drugs

204 ENVIRONMENTAL SCIENCE

Unit I

Definition and Scope of environmental studies, multidisciplinary nature of environmental studies, Concept of sustainability & sustainable development.

Ecology and Environment: Concept of an Ecosystem-its structure and functions, Energy Flow in an Ecosystem, Food Chain, Food Web, Ecological Pyramid & Ecological succession, Study of following ecosystems: Forest Ecosystem, Grass land Ecosystem & Aquatic Ecosystem & Desert Ecosystem.

Unit II :Natural Resources: Renewable & Non-Renewable resources; Land resources and land use change; Land degradation, Soil erosion & desertification. **Deforestation:** Causes & impacts due to mining, Dam building on forest biodiversity & tribal population. **Energy Resources:** Renewable & Non-Renewable resources, Energy scenario & use of alternate energy sources, Case studies.

Biodiversity: Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Biogeographical Classification of India

Unit III :Environmental Pollutions: Types, Causes, Effects & control; Air, Water, soil & noise pollution, Nuclear hazards & human health risks, Solid waste Management; Control measures of urban & industrial wastes, pollution case studies

Unit IV :Environmental policies & practices: Climate change & Global Warming (Green house Effect), Ozone Layer -Its Depletion and Control Measures, Photochemical Smog, Acid Rain
Environmental laws: Environment protection Act; air prevention & control of pollution act, Water Prevention & Control of Pollution Act, Wild Life Protection Act, Forest Conservation Acts,

International Acts; Montreal & Kyoto Protocols & Convention on biological diversity, Nature reserves, tribal population & Rights & human wild life conflicts in Indian context

Unit V :Human Communities & Environment:

Human population growth; impacts on environment, human health & welfare, Resettlement & rehabilitation of projects affected person: A case study, Disaster Management; Earthquake, Floods & Droughts, Cyclones & Landslides, Environmental Movements; Chipko, Silent Valley, Vishnoi's of Rajasthan, Environmental Ethics; Role of Indian & other regions & culture in environmental conservation, Environmental communication & public awareness; Case studies.

205 EXERCISE THERAPY-I

UNIT-I

EXERCISE PHYSIOLOGY

• Exercise and physiology of body • Psychogenic aspect of exercise • Pharmacological aspect of exercise
MECHANICS

• Force • Gravity • Levers • Pulleys • Springs & Elasticity • Pendulum

UNIT-II

MUSCLE ACTION

• Group action of the muscles • Types of muscle contraction • Types of muscle works • Range of muscle work • Angle of pull • Mechanical efficiency of muscle

MUSCLE TESTING

• Different methods of testing-(like Manual muscle testing, Static muscle testing, Dynamic muscle testing) • Principles of Manual muscle testing • Merits & demerits of Manual muscle testing
• Technique of Manual Muscle Testing of: Shoulder- flexors, extensors, adductors, abductors, internal and external rotators, Elbow-flexors, extensors, Wrist- flexors, extensors, Hip-flexors, extensors, adductors, abductors, internal rotators & external rotators, Knee - flexors, extensors, Ankle- dorsiflexors, plantar flexors.

UNIT-III

STARTING POSITION

• Definition • Fundamental position • Position and muscle work in Fundamental position • Effect and uses of fundamental positions

DERIVED POSITIONS

• Derived position of Standing, Sitting, Kneeling, Hanging & Lying
• Position and muscle work of each derived positions • Effect and uses of each derived positions

PELVIC TILTS

• Definition • Types of pelvic tilts • Structures responsible for maintenance of pelvic tilt
• Abnormal pelvic tilts • Measurements of pelvic tilts

UNIT-IV

GONIOMETRIC MEASUREMENT

• Introduction to joint range measurement
• Different methods of testing-(like Inch tape measurement, Goniometric measurement)
• Parts of goniometer • Types of goniometer • Principles & technique of Goniometric measurement
• Merits & demerits of Goniometric measurement • Technique of Goniometric measurement of: Shoulder - flexion, extension, adduction, abduction, internal and external rotation, Elbow-flexion, extension, Wrist-flexion, extension, Hip-flexion, extension, adduction, abduction, internal rotation & external rotation, Knee-flexion extension, Ankle- dorsiflexion, plantar flexion, Hand - (M.C.P., P.I.P., D.I.P. joints) • Subtalar joints

MOVEMENTS

• Anatomical movements • Surface anatomy of the joints • Rhythm of movement • Timing of movement • Duration of the movement • Classification of movements-active/passive

UNIT-V

RELAXATION

• Definition of -muscle tone, contraction, relaxation • Technique of general relaxation
• Technique of local relaxation • Effects & uses of relaxation

GAIT

• Definition of Gait • Phases and stages of normal Gait cycle • Parameters of Gait cycle
• Abnormal Gait cycle

BED RIDDEN COMPLICATIONS

- Respiratory complications • Pressure sores • Postural Hypotension • Deep Venous Thrombosis
- Pulmonary embolism • Cardio vascular endurance

OEDEMA

- Definition • Types • Treatment

TRACTION

- Definition &Types • Technique of Traction• Effects & Uses of Traction• Indications• Contra-indications

206 ELECTROTHERAPY-I

UNIT-I

ELECTRO PHYSIOLOGY

- Membrane physiology• Resting potential• Action potential• Propagation of action potential• Motor units • Synapse and synaptic transmission • Physiology of neuromuscular junction • Accommodation
- Physiology of pain-pathways • Modulation of pain-pain gate theory

INTRODUCTION TO –L F.

- Definition of L F • Principle of production of L F• Types of current used for neuro muscular stimulation

UNIT-II

FARADIC CURRENT

- Definition and character • Modified faradic current , sinusoidal current• Parameters of faradic stimulation • Physiological effect of faradic current• Therapeutic effect of faradic current
- Indications and contraindications • Technique of motor point &group muscle stimulation
- Practice on: Faradic foot bath, Faradic under pressure, pelvic floor muscle reeducation
- Precautions

GALVANIC CURRENT

- Definition and character • Parameters of Galvanic stimulation• Physiological effect of Galvanic current • Therapeutic effect of Galvanic current• Indications and contraindications
- Technique of motor point &group muscle stimulation• Precautions

UNIT-III

ELECTRO DIAGNOSIS

- Faradic Galvanic test • Strength Duration curve• Nerve conduction velocity• E M G

IONTOPHORESIS

- Definition • Principles of iontophoresis • Physiological and therapeutic effect of iontophoresis
- Principle of treatment • Contraindications and precautions

UNIT-IV

T E N S

- Definition • Application of T E N S in different painful conditions• Effects and uses

I F T

- Definition • Principle of production• Application of T E N S in different painful conditions
- Effects and uses

UNIT-V

FUNCTIONAL ELECTRICAL STIMULATION

207 BASIC NURSING AND FIRST AID

UNIT-I

INTRODUCTION TO NURSING

Concept of Nursing and its principles ,Interpersonal relationships,

COMFORT MEASURES / NEEDS

Safety Measures ,Bed making ,Different positions: prone, lateral, recumbent, Flower's position, etc.

Bandaging: Basic turns, various methods and their application, applied to extremities

Aids in positioning ,Rest and sleep

UNIT-II

LIFTING AND TRANSPORTING PATIENTS

Lifting patients up in the bed,Transfer techniques from bed to wheel chair, stretcher, floor/mat etc.

ELIMINATORY NEEDS

Giving and taking bed pan,Observation of urine, stools, sputum etc. Use and care of catheters, Enaema giving

NUTRITIONAL NEEDS

Feeding methods ,Transfusion methods

UNIT-III

CARE OF RUBBER GOODS

Simple aseptic techniques ,Sterilisation and disinfection

VITAL SIGNS

Various vital signs

INTRODUCTION TO FIRST AID

Definition ,Aims of first aid,Principles of first aid ,Golden rules of first aid,Qualities & tasks of first aider

First aid supplies & kit ,Concept of emergency

UNIT-IV

HANDLING THE EMERGENCY

Identifying the hazards ,Triage & Action plan,Call for help

STEPS IN FIRST AID

Airway, Breathing, Circulation & Resuscitation,Call for medical assistance,Reassurance of the victim

Transportation

FIRST AID IN EMERGENCIES

Haemorrhage & Dressings ,Wounds & bleeding,Vertebral injuries,Burns, scalds,Fractures & dislocations, Joint

& muscle injuries ,Head injuries ,Epilepsy,Poisoning, bites & stings,Hypothermia, heat stroke, frost bite

Foreign bodies in eye, ear, nose, throat ,First aid in Disasters

TRANSPORTATION OF THE VICTIM

Standard stretchers ,Various types of lifting & carrying,Ambulances

208 PRACTICAL-II

Practical Pathology

1. Collection of blood and anticoagulants used..
2. Discussion about parts of microscope and different types of microscopes used in pathology.
3. Staining of slide by Leishman method.
4. Study of peripheral blood smear.
5. Estimation of hemaglobin by Sahli's method and discussion of other methods used.
6. ESR
7. Identification of various instruments in pathology lab & their uses (eg. Neubauer chamber, RBC, WBC, pipette etc.).
8. Bleeding Time, Clotting Time

Practical Biochemistry

1. To identify carbohydrates in given solution by various methods.
2. To determine protein by Biuret method.
3. To perform protein test by various methods.
4. Physical examination of urine
5. Urine sugar determination by Benedict's method.
6. Protein by heat and acetic method
7. Bile salt, Bile pigments and Urobilinogen determination
8. Determination of Ketone bodies

PRACTICAL EXERCISE THERAPY-I

1. Starting positions and derived positions
2. Range of motion (PROM, AROM, AAROM) exercises to all joints
3. Measurement of joint range using goniometer
4. General and local Relaxation techniques
5. Suspension exercise to all major joints
6. Massage – upper limb, lower limb, back, face
7. Manual muscle testing of individual muscles
8. Coordination exercises, balancing exercises

PRACTICAL ELECTROTHERAPY-I

1. Identify basic electrical components in electrotherapeutic equipments.
2. Reading of medical records, indentifying indications and contraindications for electrotherapy.
3. Stimulation of motor points, stimulation of individual muscle and group muscle
4. Faradic foot bath, Faradism under pressure.
5. Plotting SD graph, diagnosis using electro diagnostic test – FG test and SD curve.
6. Placement of electrodes in TENS & IFT with dosimeter for various indications.

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