



HIMALAYAN UNIVERSITY, ARUNACHAL PRADESH

DIPLOMA IN PARAMEDICAL

(OPERATION THEATRE TECHNOLOGY)

1st YEAR

1st Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	101	General English	30	70	100	40
2	102	Computer Fundamentals	30	70	100	40
3	103	Human Anatomy	30	70	100	40
4	104	Human Physiology	30	70	100	40
5	105	Practical	30	70	100	40

2nd Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	201	General Pathology	30	70	100	40
2	202	General Microbiology	30	70	100	40
3	203	General Biochemistry	30	70	100	40
4	204	General Pharmacology	30	70	100	40
5	205	Practical	30	70	100	40

2nd YEAR

3rd Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	301	Basic of Operation Theatre	30	70	100	40
2	302	Pharmacological Principles of Operation Theatre	30	70	100	40
3	303	Microbiology	30	70	100	40
4	304	Practical	30	70	100	40

4th Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	401	Hospital Acquired Infection	30	70	100	40
2	402	Operation Theatre Technology	30	70	100	40
3	403	Practical	30	70	100	40

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DIPLOMA IN PARAMEDICAL

(OPERATION THEATRE TECHNOLOGY)

1st YEAR

1st Semester

General English (101)

1) English, Communication Skill and Public Relations:

2) Writing Skills: Basics of English grammar How to write good and correct English .what is a Sentence? Types of Sentences - simple, compound, complex.

3) Listening Skills: What is listening? Types of Listening Purpose of Listening, Obstacles of listening

4) Reading Skills: Purposes of reading Types of reading - skimming, scanning, extensive reading, intensive reading, Loud and silent reading

5) Rapport Building Interpersonal Response, Traits, Managing Difficult Communication Traits in a hospital, communication in terminal illness

6) Effective Communication - The Ten Commandments The process of communication & different type of communication Communication - Definitions, Meaning, nature of communication, Purpose of communication

7) FORMAL LETTERS: Formal Style of Communication, Formal and Informal Letters, Essentials of a Formal Letter, Mechanics of Writing a Formal Letter, Drafting the Letter, Some Basic Equipment, The Format, Letters of Request, Letters of Complaint, Replying to Letters of Complaint, Letters about Jobs, Applications, Accepting an Offer, Declining an Offer, Letters to Government and Other Organisations, Letters of Complaint, Letters Giving Instructions, Letters of Request,

8) WRITING REPORTS: Different Stages in Writing a Report, Types of Report, Reporting Case History: Informal Reports, Reporting Case History: Formal Reports, Referral Letters, Referral Letters, Reply to Referral Letter

CLINICAL CASE STUDY: Significance of case study method some features, How is clinical case study prepared, Analyzing the case, Documentation and presentation, Conclusions

IMPROVING STUDY SKILLS: How do People Learn, Reading with a Purpose, What are Study Skills, Locating Information, Study Strategies for Better Comprehension: SQ3R, Variations of the SQ3R Approach

WRITING SUMMARIES-I : The technique of summarizing, Let us sum up, Key words

FORMAL CONVERSATION: FACE-TO-FACE: Making Enquiries and Giving Information at Public Offices, Making Enquiries at Hotels and Other Places, Making Enquiries : Taking a Medical History, Giving Advice to Patients. and their Relatives, Arguing with and Persuading People, Describing a Process

INFORMAL CONVERSATIONS: FACE-TO-FACE: Greetings: Enquiries about one's Health, Everyday Situations, Social Life, Other Informal Situations

TELEPHONE CONVERSATIONS: Face-to-Face and Telephone Conversation Compared, Formal Conversation, Emergency Calls, Business Calls, Informal Conversation

INTERVIEWS: Preparation for an Interview, Unfolding the Personality: Specimen Interviews

CASE PRESENTATION: How is a Case Presentation Prepared, Data Collection and Compilation of Material, Audiovisual Aids, Choice and Method of Use, How to Make the Case Presentation, Conclusion.

Computer Fundamentals (102)

Introduction to Computer: Meaning or Definition of Computer, Evolution of computer, Features of Computer, Main Operation of the Computer, Main Elements of Computer System, Bits, Bytes and Words, Device in Computer, Various Input & output Device.

Applications of Computer: Advantages and limitations of computers.

Memory: Overview of storage devices. Main memory, storage evaluation criteria, random access memory, read only memory, secondary storage devices.

Generation of Computers and their Classification Generation of Computers, Classification of Computers

Operating System Meaning of Operating System, Function of Operating System, Language Translators

Database Meaning Of Database, Data Processing System, Function of Data Processing, Objectives of Database, Type of Database, Functions of Database Management System (DBMS), Advantages & Disadvantages of DBMS, Various Database Structures or database models

Windows Graphical User Interface, Windows, Features of Windows, Control Button of windows, Various Icons on Desktop

Microsoft Word (INTRODUCTION)

Microsoft Excel (INTRODUCTION)

Microsoft PowerPoint (INTRODUCTION)

Internet – Features, Different type of network, Internet,

Patient Management Medical Establishments using Computer, One or More Computer, Network, Software, Training, Service Operators of System Computerization in Hospitals and Nursing Homes, Features of a Hospital Software Packages, Password Protection ,Various Application of Different Medical ,Software and Support

Human Anatomy (103)

Introduction, Subdivisions of anatomy, anatomical Nomenclature-in terms of position ,location and fundamental planes

Introduction to bones of human body of:

Bone: definition, composition, functions, classification and features of a long bone.

Cartilage: definition, components and classification.

Joints: definition of joints, classification and function

Upper limb: clavicle, scapula, humerus, radius, ulna, carpus, metacarpus & phalanges,

Lower limb: hipbone, femur, tibia, fibula, tarsus. Metatarsus & phalanges, Skull: name the bone of the skull and sutures between them, Thorax: ribs and their articulation,

Vertebral column: cervical, thoracic, lumbar, sacral and coccygeal

Surface markings of the body: Nine regions of the abdomen, Four quadrants of the hip

Introduction to vital organs:

Respiratory organ Nasopharynx, Oropharynx, Larynx, Trachea, Bronchi, Lungs (and their lobular segments), Thoracic, Pleura and pleural cavity

Circulatory organ Anatomical position of the heart, Pericardium of the heart, Chambers of the heart, Great vessels of the heart, Valves of the heart

Digestive organs Tongue, Teeth, Oral cavity, Pharynx, Esophagus, stomach

Reproductive organs Male and female gonads: testes, epididymis, ovary, fallopian tube, uterus, vagina, Introduction to male genital organs, Introduction to female genital organs

Liver and spleen Introduction, Anatomical position, Gall bladder

Excretory organs Cortex and medulla of kidney, Ureter, Urinary bladder, Urethra (male and female), nephrons.

Nervous System :Basic anatomy of nervous system, Central nervous system, Peripheral nervous system, Autonomic nervous system.

Muscles Introduction, origin and insertion, function.

Human Physiology (104)

Cell: Definition ,Structure and functions the cytoplasmic organelles , Reproduction: meiosis, mitosis

The important Physio - Chemical Laws Applied to physiology Diffusion , Osmosis, Bonding, Filtration, Dialysis, Surface tension, Adsorption, Colloid

Fundamentals of different organ system:

Cardiovascular System: Systole, Diastole, Blood circulation, Conduction system of Heart ,ECG. Cardiac Output, Cardiac Stroke.

Respiratory System: Functions of Respiratory Tract, Mechanism of Breathing and Respiration, Muscles of Respiration. Common Respiratory Disorders.

Digestive System: Digestion of food in mouth, stomach & small intestines. Absorption of food, function of liver.

Excretory System: Structure & function of kidney and urinary bladder. Mechanism of urine formation. disorders of kidney.

Reproduction system: Male and Female Reproductive organs. Mensuration cycle.

Endocrine system: Functions of various endocrine glands and hormones secreted by them

Lymphatic system: Lymph vessels, lymph nodes and lymphoid organs, their structure & functions.

Blood Definition, Composition, Function

Formation of different types of blood cells Erythrocytes, Leucocytes, Thrombocytes

Mechanism of Blood clotting

Cerebrospinal fluid Formation, Composition, Function

Special senses Hearing, Taste, Smell, Touch, Sight

Practical (105)

1. Study and care of Microscope.
2. Collection of blood samples.
3. Separation of plasma from blood.
4. Demonstration of Vacutainers and its use.
5. Preparation and Examination of blood smear.
6. Histology of Skeletal Muscle.
7. Histology of smooth muscle.
8. Histology of bone.
9. Histology of hyaline cartilage
10. Histology of elastic cartilage
11. Histology of Epithelial tissues: Columnar Epithelium, Squamous Epithelium, Cuboidal Epithelium.
12. Study of Lab Equipments.
13. Study of lab specimens

English: Job application, Resume writing .Interviews, Group discussions, Essay writing, Formal and informal communication.

Computers: Presentations, using excel sheet, Identification of computer devices,

2nd Semester

General Pathology (201)

Introduction, Cell Injury ,Cell Death and Cellular Adaptation, Inflammation and types of Inflammation, Infections and types of Infections, Wound Healing and Neoplasia.

Pathology of Human Body

Introduction, Atherosclerosis and Other Vascular Diseases.

Morphological Responses of the Cardiovascular System and Ischemic Heart Diseases.

Pathology of Bacterial Pneumonia and Abscess, Tuberculosis.

Kidney and Urinary Tract Diseases.

Chronic Obstructive Pulmonary Diseases,

Pathology of the Esophagus and Stomach,

Pathology of the Small and Large Intestines

General Microbiology (202)

CLASSIFICATION OF MICROORGANISMS.

BACTERIOLOGY Introduction, Structure, Classification & Metabolism of Bacteria
.Bacterial growth curve, Basis of Antimicrobial Action- .Antibiotics.

Infections by staphylococcus and streptococcus, Infections by Mycobacterium.
Tuberculosis, Infections by E.Coli, Infections by Salmonella. typhi.

VIROLOGY Introduction, Structure, Classification and multiplication of viruses, Viral
genetics and pathogenesis of Virus, HIV virus, Hepatitis virus, Influenza virus, Herpes Virus
.Antiviral drugs

MYCOLOGY General concepts of mycology, Classification of Fungus, Structure of Fungi
and disease mechanisms, Diagnosis of Fungal Infections, Treatment of Fungal Infection.

STERILIZATION AND DISINFECTION. STAINING TECHNIQUES.

General Biochemistry (203)

Chemical Bonding Valency, Electrovalent Bonding (Ionic Bonding), Covalent Bonding
Molecular Weight of Compounds

Solutions Definition and Importance of Solutions, Types of Solutions, Diffusion, Osmosis
and Dialysis

Electrolytes Acids, Bases and Salts, Ionization, Physiological Importance of Electrolytes,

Cell: Eukaryotic Cell, its Structure and function, cell organelles structure and functions.
Biological membrane and transport .Passive and Active Transport.

Carbohydrates: classification, glycolysis and its energetic, TCA cycle and its energetics, fate of pyruvate, Regulation of blood glucose by Insulin and Glucagon. Normal Blood Glucose levels.

Lipids: Classification and importance of lipids, Types of Fatty acids, Triacylglycerols ,importance of TAG ,Phospholipids classification and function, prostaglandins and steroids. Digestion and Transportation of Lipids.

Amino acids, Proteins and Enzymes: Classification of amino acids, Importance of amino acids, Classification of Proteins, structure and functions of proteins .Classification of enzymes, Properties of Enzyme, Factors affecting Enzyme action ,Diagnostic Significance of Enzymes.

General Pharmacology (204)

Introduction, Basic concepts of drugs, Factors affecting drug response. Routes of administration of drugs, Effects of Drugs on the body, Prevention of adverse effects to drugs .Drugs and laws, Paramedics Responsibility in Drug Administration, Terminology, drug store, Ethical and Legal Aspects. Antibiotics, Antifungals, Antivirals, Time of Administration, Abbreviations and Symbols used. Antiseptics and Disinfectants,

Practical (205)

1. Blood collection.
2. TLC
3. DLC
4. Microscopic Urine analysis.
5. Microscopic Stool Examination.
6. Staining techniques: Grams staining, Acid Fast Staining, Negative Staining, Simple Staining.
7. Laboratory instruments: Principle and working of Centrifuge, Incubator, colorimeter.
8. Blood grouping.
9. Type of Stains and their Action: Acidic Stains and Basic Stains.
10. Types of media for Bacterial Culture: Nutrient Agar , Nutrient Broth, Macconkey Agar Bleeding Time and Clotting Time.

3rd Semester

Basic of Operation Theatre (301)

1. Introduction to the course: Operation room set up; discipline; liability and responsibility as an Operation Room Assistant.

2. Medic legal Aspects of Anaesthesia, consent form
3. Basic Principles of Electricity and its application in O.T., I.C.U., and C.S.S.D.
4. Fire and explosion hazards in the Operation Theatre.
5. O.T. environment (Air flow, temperature, humidity and air-conditioning)

Pharmacological Principles of Operation Theatre (302)

1. Introduction to basic Pharmacological principles, Anaphylaxis and Drug management
2. Applied pharmacology of General Anaesthetics Agents
3. Applied pharmacology of Local Anaesthetics Agents
4. Applied pharmacology of drugs used in premedication
5. Essential drugs used in CPBR (Cardio Pulmonary Brain Resuscitation)
6. Commonly used I.V. Fluids (Crystalloids and colloids).
7. Blood transfusion
 1. Blood reactions
 - 2 Blood components
8. Analgesics
 1. Opioids
 2. Non Opioids

Microbiology (303)

Common antiseptics used in an O.T.preparation of antiseptic solutions in common use.

1. Infections, spread, sources and processes of infections. causes of operative infections, common diseases caused by pathogens.
2. Immunity and types, Auto immune disorders.

3. Components, parts, care and maintenance of sterilizers
- 4 E.O. gas sterilizers.
- 5 Aseptor, disinfectant
6. Cleaning, handling, packing of material for CSSD.
7. Methods of fumigation of operation theatre and ICU.
8. Sterilization of hospital furniture
9. Sterilization of blunt and sharp instruments.
10. Sterilization of rubber goods, gloves, polyethylene tubes, gum, elastic equipment.
11. Ventilator basic knowledge.
12. Sterilization of dressings/bandages.
13. Sterilization of sutures, ligatures.
14. Sterilization of Endoscopes.
15. Sterilization of Electrical instruments/cautery.
16. Preparation and packing of different surgical and anaesthetic sets.
17. Collection, labelling and dispatch of various samples/biopsy material.

Practical (304)

GENERAL SURGERY SETS:

- Incision and Drainage set
- Minor Set
- General Surgical Set
- Laparotomy Set
- Gall bladder Instruments Set.
- Resection anastomosis set
- Sigmoidoscopy Set.
- Haemorrhoidectomy Set.
- Thoracostomy Set.
- Lumbar puncture Set.

OBSTETRIC & GYNAECOLOGY SETS:

- D & C set /MTP set
- Episiotomy set
- Caesarean section set.

- Abdominal hysterectomy set.
- Vaginal Hysterectomy set.

ORTHOPAEDIC SURGERY SET:

- General orthopaedic set.
- Femur nailing set
- Nailing set for tibia
- Radius & Ulna nailing set
- Humerus nailing set.
- S.P. nailing set.
- Austin Moore hip set.
- Amputation set

Steinmann's pin insertion set

4th Semester

Hospital Acquired Infection (401)

1. Nosocomial infection (Hospital acquired infection).
2. C.S.S.D.
3. Universal safety precautions
4. HIV / AIDS and Hepatitis.

Operation Theatre Technology (402)

1. Transportation of unconscious patient.
2. Common positions for operative procedures.
3. O.T. tables and lighting C arm, microscopes, endoscopes.
4. Airway management and IPPR.
5. Cardio pulmonary resuscitation.
6. First Aid bandages, splints, plasters.
7. Preparing POP splints, bandages.

8. Collection, handling, dispatching of tissue, fluid, blood, urine samples for laboratory investigations, pathological or microbiological exam.
9. Biomedical waste collection, transport, disposal and personal hazards.
10. Reception of patients
11. Pre-operative preparation of Patient
12. Exact Anaesthetic Technique
13. Post Anaesthetic Care Unit (PACU)
14. Care and transport of unconscious patient
15. Positioning
 - A. Anesthetic Procedures
 - B. Operative Procedures
- O.T. Technician in surgical Assistant

Practical (403)
