

# **TWO YEARS POST MATRIC TEACHING PROGRAM OF PARAMEDICS**

F. Sc. (Dispensing Technology)

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## **AIMS AND OBJECTIVES OF THE COURSE**

- A)** To prepare the students to become an efficient Dispensing Technician, well versed with the techniques and background analysis, in all the branches of the General medicine. For this purpose, the teaching in the special technical subjects involves lectures; practical that include demonstration and bench work; and job training of both “Observing Type” and “Involvement Type” in the latter the students participate in duty performance in the working EAC/ All Wards/ OPDs/ BHUs/ RHCs and dispensaries.
  
- B)** To make the course and qualification comparable with similar programs in the country so that the candidates have a competitive standing in job seeking as well as in eligibility for entry into a graduation course in the technology in any such Institute.

## Dispensing Technology

<b>Name of Subject</b>	<b>Theory / Practical</b>	<b>Topics Included</b>	<b>Marks</b>
Part – I & II			
Basic Medical Sciences	Theory	Anatomy, Physiology, Public Health and First Aid	150
	Practical	As per above subjects through charts and models etc. only for anatomy and physiology	50
Dispensing Technology	Theory	Dispensing Techniques-1 Dispensing Techniques-2	150
	Practical	As per curriculum	100
Applied Sciences	Theory	Physics, Chemistry, Computer & Patient Safety	100
	Practical	As per Curriculum	50

## Dispensing Technology HSSC-I

<b>Name of Subject</b>	<b>Theory / Practical</b>	<b>Topics Included</b>	<b>Marks</b>
<b>Part – I</b>			
Basic Medical Sciences-I	Theory	Anatomy, Physiology.	75
	Practical	As per above subjects through charts and models etc. only for anatomy and physiology	25
Dispensing Technology-I	Theory	Dispensing Techniques-1	100
	Practical	As per Curriculum	50
Applied Sciences-I	Theory	Physics, Chemistry.	50
	Practical	As per Curriculum	25

## Dispensing Technology HSSC-II

Name of Subject	Theory / Practical	Topics Included	Marks
Part – II			
Basic Medical Sciences-II	Theory	Public Health and First Aid	75
	Practical	First Aid and Field visits for Public Health	25
Dispensing Technology-II	Theory	Dispensing Techniques-II	100
	Practical	As per Curriculum	50
Applied Sciences-II	Theory	Computer & Patient Safety	75
	Practical	As per Curriculum	25

## Dispensing Techniques-1 HOURS DISTRIBUTION PER WEEK

S.No.	Subject	Theory	Practical	Total
1	Dispensing Techniques-1	06	06	12
2	Basic Medical Sciences - I	03	03	06
3	Applied Sciences - I	02	01	03
4	English - I	06	-	06
5	Urdu - I	06	-	06
6	Islamic Education /Civics for Non-Muslims	01	-	01

## HOURS DISTRIBUTION PER YEAR

S.No.	Subject	Theory	Practical	Total
1	Dispensing Techniques-1	240	240	480
2	Basic Medical Sciences - I	120	120	240
3	Applied Sciences - I	80	40	120
4	English - I	240	-	240
5	Urdu - I	240	-	240
6	Islamic Education / Civics for Non-Muslims	40	-	40
		960	400	1360

## Part-2

### HOURS DISTRIBUTION PER WEEK

S.No.	Subject	Theory	Practical	Total
1	Dispensing Techniques-II	06	09	15
2	Basic Medical Sciences – II	02	01	03
3	Applied Sciences – II	02	01	03
4	English – II	06	-	06
5	Urdu – II	06	-	06
6	Pak Studies	01	-	01
		23	11	34

### HOURS DISTRIBUTION PER YEAR

S.No.	Subject	Theory	Practical	Total
1	Dispensing Techniques-II	240	360	600
2	Basic Medical Sciences – II	80	40	120
3	Applied Sciences – II	80	40	120
4	English – II	240	-	240
5	Urdu – II	240	-	240
6	Pak Studies	40	-	40
		920	440	1360

# **APPLIED SCIENCES**

## **PART - I**

## **PHYSICS AND CHEMISTRY**

1. The nature of Science, Divisions of Science, and Scientific method.
2. The Measurement – Metric System, scientific notation, units of mass, length and volume.
3. Mechanics – Force, equation of motion, laws of motion.
4. Gravity – speed, velocity and acceleration, center of gravity, weight and mass.
5. Work, Power, Energy.
6. Simple machines – principles of machines, friction, levers.
7. Density, Specific gravity, Archimedes' Principle.
8. Pressure – Definition, pressure in hydrostatic fluids, pressure in flowing liquids.
9. Gas Laws – Boyle's and Charles laws, gas laws applicable to respiratory process, effects of changes in atmospheric pressure on physiology of the human body.
10. Heat – nature and measurement, effects of heat, methods of transfer.
11. Light – Transmission, reflection and refraction of light, lenses.
12. Sound – How it is produced, characteristic, transmission, reflection of sound, echoes, ultrasound.
13. Electricity – Atomic structure, free electrons, conductor and insulators, Definition of current, P.D., Resistance, Resistance laws, Ohm's law, circuit, series circuit, parallel circuit, Power and energy.
14. Magnets and Magnetism – Properties, magnetic field, magnetic lines of force, electromagnet, magnetic effect of electric current, Motor and generator effect of current, magnetic and electric induction, Transformer.
15. Charge – Coulomb's law, capacitor and capacitance, capacitor in series and in parallel.
16. A.C. Definition, RMS value, Peak value Sine wave.
17. Electromagnetic Radiation – Spectrum, ionization, excitation, Inverse Square law, frequency, wave length, terms and their definitions.
18. Composition of Substance – Atoms and molecules, symbols, formulae, Elements and compounds, chemical formula.
19. Chemical Reactions and Equations.
20. Water – physical and chemical properties, Deliquescent, efflorescent, hygroscopic substances, solvent properties, Hydrolysis, Water cycle, impurities, hard and soft water.
21. Solutions – Terms, Solubility, Concentrations, dilutions, properties of solution.
22. Acid, Bases, and salts.
23. pH Scale and buffer system.
24. Electrolytes and electrolysis.
25. Amines and amides
26. Proteins – compositions, properties of amino acids, classifications.
27. Carbohydrates
28. Lipids



### **Practical Chemistry**

1. How fitting up a wash bottle is prepared?
2. To pacify the given sample of impose naphthalene crystallization.
3. To pacify the given sample of naphthalene by sublimation.
4. To determine the melting & boiling point of organic compound.
5. To prepare the standard solution of acid or Base.
6. To prepare a standard solution of exotic acid and with its help standardize a solution of NaoH.
7. To prepare approximates N/10 solution of H<sub>2</sub>SO<sub>4</sub> determine its exact normality by titrating it against standard N/10 NaoH?
8. To standardize a given solution by direct method.
9. To standardize a given solution by indirect method.

### **Practical Physics**

- a. To find the unknown force.
- b. To find the center of gravity of an irregular shape.
- c. To verify the law of reflection.
- d. To find the path of light passing through a prism.
- e. To find the focal point of a lens.
- f. Determine the critical angle of glass using a glass prism.
- g. Determine the focal length of convex lens.
- h. To find the reflective index of a liquid using a concave mirror.
- i. Determine the speed of sound at a room temperature.

**APPLIED SCIENCES**  
**PART – II**

## **APPLIED COMPUTER SCIENCES**

Note: This is an introduction to computer science. A brief description and definitions of terms will be taught to the students.

1. An over view of Computer system.
2. The shapes of computer today–Super Computer, Main frame, mini computer, Works stations and PC.
3. Input methods–Key board , Mouse,
4. Alter native methods of input – hand devices, optical devices, Audio-visual input devices.
5. Monitors and sound system – Monitors – PC. Projectors, sound system.
6. Printer and brief introduction to its types.
7. Transforming data in to information representation, process, speed etc.
8. CPU – types with definition
9. Types of storage devices – Magnetic and optical.
10. Measuring drive information- access time, file compression, transfer rate, interface standard.
11. Basic of operating system–interface, programme, files, hardware and software management
12. Definitions of Unix, DOS, Macintosh operating system, Windows, OS / 2, Windows NT, 95, 98, 2000, Linux.
13. Words processing and Desk tope Publishing software.
14. Spread sheet software.
15. Presentation programme
16. Data base management System.
17. Networking basics – brief of use, structure, LANs, Media, Hardware and Software.
18. Networking – Standard telephone lines, digital lines, Network in the home. 19. Internet basics
20. Accessing, connecting, working on internet, introduction to DICOM, PACS.
21. Working with images.
22. Graphics software.
23. Understanding multi-media.
24. Creating and distributing media contents.
25. Basics of information system- Use, Parts.
26. Building information system – five phases – need, Design, development, implementation, maintenance.
27. Creating programmes – definitions of programme and approaches.
28. Programming languages and system development life cycle.
29. Ergonomics, health and privacy issues.
30. Brief of computer crimes, Viruses, Theft and computer environment

# PATIENT SAFETY

## 1-10 **Electrical Hazards**

- Electrical current and body muscles
- Electric shock
- Defibrillators
- Pace makers
- High and low frequency electricity in medicine
- Classification of medical equipment
- Degree of protection in equipment
- Earth leakage current
- Maximum current limits and safety tests

## 11-15 **Fire and explosion in hospitals**

- Inflammable gases and liquids
- Static electricity
- Precaution against fire and explosion

## 16-26 **Surgical diathermy and other possible hazards in hospitals**

- Surgical diathermy and precautions
- Mechanical hazards
- Heat and light hazards
- Chemical burns

## 27-35 **Radiation**

- Non-ionizing radiation
- Ionizing radiation
- Microwave ovens
- Ultrasound therapy equipment
- Lasers

## 36-40 **Infection in hospitals**

- The hospital environment
- Pathogenic, non-pathogenic microorganisms
- Modes of spread of infection
- Kinds of infection
- Cross-infection
- Precautions and prevention.

**BASIC MEDICAL SCIENCES**  
**PART - I**

# ANATOMY

The depth of the subject will only be diagram and labeling of the diagram.

## Contents

### 1. Introduction

**2-3.** The study of human cell and functions of organelles, Nucleus, DNA helix, RNA, genetic code, Chromosomes.

Cell Division

Mitosis and Meiosis of cell

### 4-9. BASIC TISSUES

- Different Types of tissues.

- Connective tissues.

- Epithelial tissues.

- Muscle tissues.

- Nervous tissues. - Blood tissues.

**10-11.** The circulatory system- Structure of heart. Different chambers of heart, main arteries arising from the heart and main veins of the heart, branches of arch of aorta, Thoracic aorta, abdominal aorta, main vessels of upper and lower limbs.

### 12-13. Lymphatic System 14-17. The Gastrointestinal Systems

- Mouth

- Pharynx

- Esophagus

- Stomach

- Small Intestine

- Large Intestine

- Accessory organs (Liver, Spleen, Pancreas & Gall Bladder)

### 18-20. Respiratory System

1. Organs of respiration

2. Upper respiratory tract

3. Lower respiratory tract

### 21-22. The Skin

- Epidermis

- Dermis

- Sebaceous glands

- Nails

### **23-25. The Nervous System**

1. CNS central nervous system
2. Peripheral Nervous System
  - Different parts of nervous system
  - Structure of cerebrum, mid brain, cerebellum, pons and medulla oblongata, spinal cord and
  - Autonomic nervous system

### **26-28. The Endocrine Glands** Short description and position of:-

- Pituitary gland
- Thyroid gland
- Parathyroid gland
- Adrenal gland
- Hormones of Testis
- Prostate
- Ovaries
- Pancreas and Thymus

### **29-31. The urinary system**

Structure of kidney, urethra, urinary bladder, prostate gland and ureter. Difference of right and left kidneys.

### **32-33. The Reproductive System**

- Male reproductive system
- Female Reproductive System
- Different organs of male reproductive system, structure of testis, the scrotum, seminal vesicles, prostate gland, the penis and urethra.
- Different organs of females reproductive system, Mammary glands, Structure of ovaries, uterus, cervix and vagina,

### **34-35. The Skeleton**

Different bones of skull. Bones of upper limbs, lower limbs, thorax, pelvis and vertebral column.

36-38. Structure of individual bones, scapula, humerus, radius, ulna, femur, tibia and hip bones, hands, foot, ribs, sternum, clavicle, sacrum, thyroid, hyoid, \*/

### **The Joints**

1. All joints and their movements
2. Main muscles of body.

### **39-40. The Special Senses:**

Brief anatomy of eye. Three coats of eye ball. Brief anatomy of ear Outer, middle and inner ear, nose- inner and outer, tongue, salivary glands, skin.

### **Recommended Books:**

Foundations of anatomy and physiology by Kathleen J.W. Wilson.

# PHYSIOLOGY

The physiology of the following topics will consist of brief description of the function of part of the body.

**1-3. The cell and its functions**

1. Structure and Functions of a human cell
  - The cytoplasm and its organelles
  - Comparison with animal cell
  - Functional system of the cell
2. Endocytosis & Phagocytosis
  - Ingestion and digestion by the cell
  - Functions/Structures of Golgi apparatus
3. Cell Division
  - Mitochondria and reticulum.
  - Cell reproduction.

**4-9. Tissues and fluids of body.**

**10-11. Cardiovascular system (Heart and circulation)**

- Description of Heart and vessels (arteries, vein, and capillaries)
- Cardiac cycle, diastole and systole
- Functions of atria and ventricles
- Functions of valves
- Heart pumping (work output of heart) Cardiac output, stroke volume etc.
- Heart sounds

**Lymphatic system function 12-14. Respiratory System**

- Basic mechanism of respiration
- Inspiration expiration mechanism
- Pulmonary capacities and pulmonary volumes
- Respiratory rate and tidal volume definitions
- Functions of respiratory pathways (Chemical & Neural Control)
- Artificial respiration, mouth breathing
- Transport of oxygen and carbon dioxide in the blood and body fluids **15-18.**

**Gastro intestinal tract.**

- Ingestion of food, mastication (Chewing)/ Digestion and Swallowing
- Functions of stomach
- Storage function, mixing of food

**19-20. Secretions of GIT**

- Saliva, Salivary glands functions of
- Saliva, Gastric Secretion, Functions of
- Pancreatic secretion, Bile secretion and its function



Secretions of the small intestine, secretion of large intestine, Digestion and absorption of food

### **21-25. Metabolism**

Introduction to Fat and Protein Metabolism

Introduction to Carbohydrates Metabolism, Role of glucose in Carbohydrate metabolism, Transport of glucose in body tissue, Lipid metabolism transport of lipids in the blood.

Transport from the GIT, and fat deposits, Proteins metabolism, basic properties of protein, use of proteins for energy, Vitamins and their metabolic role.

### **27-28. Endocrine Glands.**

Endocrine glands and their hormones

The pituitary hormones and their functions

The thyroid hormone, The adrenocortical hormones

Parathyroid hormones and their functions **29-32.**

### **Reproductive System.**

Functions of the male reproductive organs

Functions of the female reproductive system

Testosterone and other male sex hormones

Pregnancy, lactation and female hormones

### **33-37. Special Senses**

Introduction to Sensory organs and their function

The eye functions and elements of eye, Sclera, choroid retina, The eye as a camera,

Sense of Hearing, tympanic membrane and external ear, middle ear and vesicles,

Internal ear and its functions

Conduction of sound to the cochlea The functions of Tongue and salivary glands.

The functions of nose and tonsils / Adenoids.

The functions of skin and its appendages

### **38-40. Nervous System**

General design of nervous system types and parts of nervous system Functions of brain, cerebrum cerebellum spinal cord. Cranial nerves. Autonomic nervous system (Parts and functions)

**BASIC MEDICAL SCIENCES**  
**PART - II**

# FIRST AID

## 1. First Aid

- Definition

- Principles

- Actions at emergency

-

2. Dressing + Bandages

3. Short structure & function of respiratory system

4. Asphyxia

5. Assisted respiration

6. Short structure and function of C.V.S.

7. Shock (Circulatory failure) Pathophysiology

8. Cardiogenic shock Treatment

9. Hypo-volume shock (Hematologic) with treatment other condition.

10. Anaphylactic shock

-Signs

-Symptoms

-Treatment

11. Septic Shock "

12. Neurogenic shock "

13. Cardiopulmonary resuscitation principles practical demonstration.

14. Assessment of newborn

15. Resuscitation of newborn

16. Short structure & function of locomotive, Sprains and strains

17. Fractures, First Aid Management

18. Burns, Scalds causes and First Aid Management

19. Wounds cuts stabs and management

20. Management of Bleeding from wound/NOSE/mouth/misc.

21. Drowning-First Aid management

22. Road traffic accidents (First Aid Management)

23. Transport of injured persons especially spinal care

24. Care of Coma / stupor unconscious victim
25. Poisonings-Swallowed persons and first aid management
26. Poisonings inhalation poisonings first aid management
27. Bites Stings management human, cat dog insect
28. Snake bite and first aid management
29. Anaphylactic Shock and its management
30. Choking (Foreign body in airway)
31. Abdominal pain (First aid)
32. Sport injuries
33. Safety at home precautions / safety 34. Precautions at kitchen to avoid accidents.
35. Precautions at bathroom
36. Precautions in living room
37. Precautions at stairs and at terraces

## **PUBLIC HEALTH**

- 1. Introduction:** To health field, definition of health, preventive, social, community and family medicine.
- 2. Health care organization in Pakistan.**
  - i. General introduction to federal, provincial, divisional and district level organizational structure.
  - ii. Role of paramedics in hospitals.

### **3-6. AIR**

Composition and functions-Pollution and pollution indicators-impurities in air cleaning methods (an overview)

### **7-12. WATER**

Sources of water with special reference to Pakistan. Impurities-Safety-Purification, Natural and artificial methods.

### **13-17. VENTILATION**

Objectives and merits. Over crowding and its effects on human body. Natural ventilation and artificial ventilation.

### **18-25. Wastage**

Introduction-refuse and its collection. Methods of collection and disposal of refuse-Excreta-Methods of collection and disposal of Excreta.

### **26-27. Infection and disinfecting**

Introduction-Terminology-Methods of disaffection.

**28-29.** Sources of infection-routes of transmission i.e., air, water and food.

### **30-39. Communicable diseases**

Introduction-EPI and diseases related to it, vaccination schedule.

Communicable diseases like T.B., diphtheria, tetanus, polio, whooping cough and measles Epidemiology and prevention methods for above diseases.

### **40. Family Planning**

Need and objectives-general methods.

# **Dispensing Technique-I**

## **Course contents**

### **A. Introduction**

- Responsibility of Dispenser
- Health care system in Pakistan
- Basic Terminologies

### **B. Systems and its Associating Diseases**

#### **1. Introduction to Respiratory System**

- Pneumonia,
- Chronic Obstructive airway diseases (COAD)
- Bronchial Asthma
- Pulmonary Tuberculosis (TB)
- Respiratory Failure

#### **2. Introduction to Cardiovascular systems**

- Hypertension (HTN),
- Ischemic heart disease (IHD)
  - a. Angina
  - b. Myocardial infarction (MI),
- Cardiomyopathy:

- Congestive cardiac failure (CCF)

### **3. Introduction to Gastro intestinal system**

- Gastroesophageal Reflux disease (GERD)
- Peptic ulcer / Duodenal ulcer
- Gastroenteritis
- Hepatitis and its types
- Appendicitis,
- Cholecystitis,
- Intestinal obstruction,
- Haemorrhoids,
- Hernia

### **4. Introduction to Central nervous system**

- Cerebro Vascular Accident (Stroke)
- Epilepsy,
- Meningitis /Encephalitis,
- Bell's Palsy
- Head injury, Spinal injury

### **5. Introduction to Renal System,**

- Urinary tract infection(UTI),
- Renal stone/ureteric stone/vesicle stone,
- Renal failure (acute and chronic)
- Cystitis
- Prostatic Diseases



## **6. Introduction to ENT /EYE**

- Tonsillitis /Laryngitis/ pharyngitis
- Allergic Rhinitis
- Deviated Nasal septum
- Suppurative otitis media
- Epistaxis
- Foreign Body
- Conjunctivitis /ophthalmitis/ blepharitis
- Dacryocystitis
- Corneal ulcer/ cornea opacity
- Cataract
- Glaucoma
- Squint
- Visual acuity disorder

## **7. Introduction to Endocrine System**

- Diabetes Mellitus (DM)
- Hyperthyroidism / Hypothyroidism
- Pancreatitis

## **8. Introduction to Blood**

- Anaemia and its types

## **9. Infectious Diseases**

- Enteric Fever,
- Cholera,
- Dysentery,
- Malaria,
- Measles,
- Mumps

- Chickenpox,
- Polio,
- Warm infestation,
- COVID19,
- Influenza,
- HIV/AIDS

#### **10. Dermatology**

- Dermatitis,
- Scabies,
- Eczema,
- Psoriasis,
- Vitiligo,
- Insect bite
- Herpes

#### **11. Introduction to Musculoskeletal system**

- Bone fracture and it types,
- Dislocation,
- Joint disorder

#### **12. Introduction to Male and Female Reproductive system**

- Menstrual cycle disorder,
- Pelvic Inflammatory diseases (PID)

## **Practicals for Dispensing Technic HSSC-I**

### **1. Anatomical Models / Charts for different Systems**

### **2. Slides Showing Diseases of Different Systems**

### **3. Instruments and its applications**

- I/V cannula administration
- N/G tube insertion
- Foley catheter insertion
- Use of Flatus Tubes
- Stomach wash / bladder wash
- Surgical dressing /Wound care
- Use of Nebulizer
- Stitch of wound / removal of stitch
- Enema administration
- Use of Thermometer and its readings
- Use of Stethoscope
- Use of sphygmomanometer (BP Apparatus)
- Use of lumbar Puncture Needle
- Use of pulse oximeter
- Use of Cardiac Monitor
- Use of Suction of Machine
- Use of Oxygen concentrator / Cylinder
- Use of Sterilizers / Autoclave
- Types of Splints
- Bandages and its types

# **Dispensing Technique-II**

## Dispensing Technique - II

### **A. Pharmacy and Pharmacology**

1. Definition of drugs, nomenclature of drugs, sources of drugs, dosage and preparations, pharmacopoeias.
2. Incompatibilities.
3. Weights and measures (Metric and Imperial Systems) with symbols and their conversions.
4. Compounding and dispensing of pharmaceutical preparations.
5. Calculations of percentage solution.
6. Reading and writing of prescriptions, including knowledge of parts of prescription.
7. Basic knowledge of important commonly used drugs which will include the following: -
  - a. Classification.
  - b. Names of Official Drugs.
  - c. Preparations, doses, and routes of administration.
  - d. Important uses, contraindications, main toxic effects.
8. Drug Act.
9. Medical Dental Ordinance.
10. Prohibition of Medical Practice Ordinance.
11. Storage of medicines/equipments/instruments.

### **B. Drug use in different diseases**

1. Drugs acting on Autonomic Nervous System (ANS)

- a. Basic concepts of ANS.
- b. Adrenaline, Dopamine, Salbutamol, Ephedrine, Beta Blockers and Methyldopa.
- 2. Drugs used in Glaucoma**
- 3. Drugs used in Angina**
- 4. Drugs used in Hypertension**
- 5. Drugs acting on Respiratory System :**
  - a. Expectorants
  - b. Antitussives
  - c. Bron-Cho dilators
- 6. Antibiotics and Chemotherapeutic Agents**  
Sulphonamides, Cotrimoxazole, Penicillin, Cephalosporins, Aminoglycosides, Tetracyclines, Chloramphenicol, Macrolide, Antifungal Drugs, Anti-viral drugs.
- 7. Drugs used in the treatment of Tuberculosis, Leprosy, Amoebiasis, Malaria and Anthelmintics.**
- 8. Drugs Acting on Blood**  
Hematinic, Anticoagulants, Heparin
- 9. Drugs acting on Gastrointestinal Tract**  
Antacids, Purgatives, Antiemetics, Drugs used in peptic ulcer, Antidiarrheal drugs.
- 10. Drugs acting on Central Nervous System**  
Antipsychotic Drugs (Major Tranquilizers), Antianxiety Drugs (Minor Tranquilizers), Narcotic-Analgesics, Analgesics-Antipyretics (Non-Steroidal Anti-Inflammatory Drugs), Alcohol, Hypnotics, General Anesthetics , Local Anesthetics and Analeptics (Nikethamide).
- 11. Treatment of Over-dosage and Poisoning** Morphine, Opioids, Atropine, Strychnine, Insecticides, Kerosine Oil, Acids, Caustics(Alkalis) ,Toxicology, side effects of drugs used.

## **C. Sterilization**

- Principles of sterilization as applied to operation theatre, dressings, hands and skin, preparation of hypodermic injections, syringes.
2. Practical training in emergency procedures and anesthesia.
  3. Charting of temperature and pulse.
  4. Pattern of Treatment Chart, Investigation Forms.
  5. Use of common clinical appliances (Thermometer, BP Apparatus), sterilizer, lumbar puncture needle, splints etc.).
  6. Virus, bacteria, fungus.
  7. Elementary knowledge of sera, vaccines, toxins and antitoxins i.e. anti-tetanus toxoid, anti-diphtheria toxoid, anti-rabic vaccine, anti-snake venom, anti-gas gangrene serum, and vaccines for cholera, typhoid, whooping cough, influenza, poliomyelitis, typhus, plague, T.B., measles etc.
  8. Storage of drugs, vaccines, transportation, their validity, stock taking and labelling.

9. Routine urine, blood and sputum examination and other routine examinations and normal values. Sample collecting for laboratory tests and their proper disposal.

10. Preparation of Emergency Room.

## **D. Record Keeping and Maintenance of following Registers**

1. Charting Temperature, pulse etc.

2. Outdoor Register

3. Abstract Register

4. Poisons Register

5. Expense Register

6. Medicolegal Register

7. Postmortem Register

## **E. Study of Medicolegal Cases / postmortum**

## **PRACTICALS DISPENSING TECHNICHS HSSC-II**

Candidates will be required to prepare and dispense following preparations:

### **1. Preparations**

- a.. Ointment of Sulphur and other skin ointments
- b. Solutions :Potassium Permanganate, Acriflavine, Dextrose Saline Solutions.
- c. Fractional Powder .
- d. Menthol's paint.
- e. Gum paint.

### **3. Identification of Specimens**

Identification of different shapes of the drugs e.g.:

- a. Enteric coated
- b. Sugar coated
- c. Different roots for administration of drugs
- d. Normal values of different tests
- e Identification of different scopes
- f. Physical examination of injectables
- g. Packing and preparation of drugs
- h. Poppy capsules
- i. Belladonna root
- j. Aspirin powder
- k. Sodium bicarbonate
- l. Copper sulphate
- m. Menthol
- n. Thymol
- o. Camphor
- p. Tinct Cardamom
- q. Spirit
- r. Gentian Violet
- s. Acriflavine



## WEIGHTAGE OF VARIOUS SECTION OF THE SYLLABUS

### PART - I

S.No	Subject	Part / Class	Section	Weightage	Total Marks
1	Basic Medical Sciences (Anatomy & Physiology)	XI	I – Cell, Basic Tissue, Lymphatic System, Skin, Special Senses.	33 %	75
			II – GIT, Respiratory System, Cardiovascular System, Skeletal System & Joints.	33%	
			III – Nervous System, Reproductive System, Urinary System, Metabolism.	33%	
	Practical				25

2	Applied Sciences (Physics & Chemistry)	XI	Physics I – (1-4) Science, Measurement, Mechanic & Gravity. II – (5-8) Work & Energy, Machines, Density, Pressure. III – (9-11) Heat, Light & Sound IV – (12-14) Electricity and Magnetism V – (16) Electromagnetic Radiation Chemistry VI – (17- 19) Composition, Reactions, Gas Laws VII – (20-21) Water & Solutions VIII – (22-24) Acid, pH, Electrolytes IX – (25-28) Amines, Proteins, Carbohydrates, Lipids.	50 % 10 % 10 % 10 % 10 % 50 % 10 % 10 % 10 % 10 % 10 %	50
	Practical		As per list given		25
3	Dispensing (JMT) Technique - I	XI			75
	Practical		Same as above		50
4	English	XI	As per approved syllabus for HSSC – I		100
5	Urdu		As per approved syllabus for HSSC – I		100
6	Islamiyah		As per approved syllabus for HSSC – I		50

## WEIGHTAGE OF VARIOUS SECTION OF THE SYLLABUS

### PART - II

S.No	Subject	Part / Class	Section	Weightage	Total Marks
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1	Basic Medical Sciences (First Aid & Public Health)	XII	I – Topic 1, 2, 33 – 37 (First Aid), Topic 1 & 2 (Public Health)  II – FA Topics 7 – 15, 18, 21 – PH Topics 3 – 17 & 40  III – FA Topics 17, 20, 22, 23, & 32 -- PH Topics 18 -27 IV – FA Topics 24 –26, 29 – 31 – PH 30 – 39	25 %  25%  25%  25%	75
	Practical		Same as above		25
2	Applied Sciences (Computer & Patient Safety)	XII	Computer I – Topics 1- 6  II – Topics 7 - 12  III – Topics 13 – 18 IV – Topics 19 – 24  V – Topics 25 – 30  Patient Safety  VI – Electrical Safety  VII – Fire and Explosion  VIII – Surgical Diathermy  IX – Radiation Safety  X – Infection in Hospital	50 % 10 %  10 % 10 % 10 %  50 %  20 %  02 %  08 %  15 %  05%	75
3	Dispensing (JMT) Technique - II	XII			75
	Practical		Same as above		50
4	English	XII	As per approved syllabus for HSSC – I		100
5	Urdu	XII	As per approved syllabus for HSSC – I		100
6	Pak Study	XII	As per approved syllabus for HSSC – I		50