TWO YEARS POST MATRIC TEACHING PROGRAM OF PARAMEDICS

CARDIOVASCULR TECHNOLOGY

OBJECTIVES

CARDIAC TECHNICIAN

The student should be: -

1. Computer literate
2. Able to interpret gross changes in the ECG.
3. Assist the doctor in doing Echocardiography.
4. Able to do ETT.
5. Able to do Holter Monitoring.
6. Able to do ambulatory BP Monitoring and processing.
7. Able to do Tilt Test.
8. Able to do CPR.
9. Able to maintain the machinery with knowledge of Physics.
10. Know the hazards of radiation and its safety.
11. Know the Cath Lab procedures and positions.
12. Able to handle the Cath lab machine.
13. Able to keep the records of material, machinery, and patients.
14. Able to operate all the machines related to Cardiology.

CARDIOVASCULAR TECHNOLOGY

Name of Subject	Theory / Practical	Topics Included	Marks
Basic Medical Sciences	Theory	Anatomy, Physiology, Public Health and First Aid	150
	Practical	As per curriculum	50
Cardiovascular Techniques	Theory	Anatomy & Physiology of the Heart, Cardiac Cycle & output, Conduction system, Arterial Pressure, ECG, Tilt Test, Holter Monitoring, Ambulatory recording, Nuclear Cardiology, Cath Lab, Cardiology Equipment.	150
	Practical	As per curriculum	100
Applied Sciences	Theory	Physics, Chemistry, Computer & Hospital Safety	100
	Practical	As per curriculum	50

CARDIOVASCULAR TECHNOLOGY HSSC-I

Name of Subject	Theory / Practical	Topics Included	Marks
Part - I			
Basic Medical Sciences-I	Theory	Anatomy, Physiology	50
	Practical	As per curriculum	25
Cardiovascular Techniques-I	Theory	Anatomy & Physiology of the Heart, Cardiac Cycle & output, Conduction system, Arterial Pressure, ECG, Tilt Test, Holter Monitoring, Ambulatory recording,	100
	Practical	As per curriculum	50
Applied Sciences	Theory	Physics, Chemistry.	50
	Practical	As per curriculum	25

CARDIOVASCULAR TECHNOLOGY HSSC-II

Name of Subject	Theory / Practical	Topics Included	Marks
Part - II			
Basic Medical Sciences-II	Theory	Public Health and First Aid	50
	Practical	As per Curriculum	25
Cardiovascular Techniques-II	Theory	Common Diseases/ Investigations Equipment / Instruments and Drugs , Nuclear Cardiology, Cath Lab, Cardiology Equipment.	100
	Practical	As per Curriculum	50
Applied Sciences	Theory	Computer & Hospital Safety	50
	Practical	As per Curriculum	25

CARDIOVASCULAR TECHNOLOGY

PART - I

HOURS DISTRIBUTION PER WEEK

S.No.	Subject	Theory	Practical	Total
1	Cardiovascular Technique-I	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 Studies	01	-	01

HOURS DISTRIBUTION PER YEAR

S.No.	Subject	Theory	Practical	Total
1	Cardiovascular Technique-I	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 Studies	40	-	40
		960	400	1360

PART– II

HOURS DISTRIBUTION PER WEEK

S.No.	Subject	Theory	Practical	Total
1	Cardiovascular Technique-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	Cardiovascular Technique-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's 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_2SO_4 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 an introduction to computer science. A brief description and defections of terms will bee 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
- Pacemakers
- 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 microgenisms
- 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. 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 glands hormones of testis, ovaries, pros tic , pancreas, and thymus.

- Pituitary gland
- Thyroid gland
- Parathyroid gland
- Adrenal gland
- Hormones of Testis
- 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, clinical, sacrum, thyroid , Hyoid cricoid.

The Joints

1. Joints and their movements
2. Main muscles of body

39-40. The Special Senses:

Brief anatomy of eye. Three coats of eyeball. 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. W

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 functions

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. Gastrointestinal 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 functions 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 function of Tongue and salivary glands.

The function of Nose and tourils / Adenoids.

The function of skin and its appendages.

Chemical senses of taste and smell physiology of tongue and skin

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-volumic 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 aid0
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 crowing 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.

CARDIOVASCULAR TECHNIQUES - I

Cardiovascular Techniques - I

1. **Anatomy of Heart and blood vessel**

    a. General review Circulation
    b. Position & Surface Anatomy of Heart
    c. Different chambers of heart
    d. Layers of Heart
    e. Coronary Anatomy
    f. Venous drainage
    g. Nerve Supply of the Heart
    h. Valves

2. **Physiology of the Heart**

    a. Properties of Cardiac muscles
    b. Action Potential
    c. Cardiac Cycle
    d. Functions of Atria
    e. Functions of Ventricle
    f. Functions of Valves

3. **Cardiac Cycle**

    a. Definition
    b. Contraction and Relation
    c. Factors affecting Cardiac Output
    d. Preload
    e. Afterload
    f. Ejection Frictions
    g. Diastolic and Systolic function

4. **Conducting System**

    a. Automatic
    b. Rhythmic
    c. Conductivity
    d. S.A. Node
    e. A.V. Node
    f. Bundle of His / Branches

5. **Circulation**

a. Blood supply of the heart
b. Blood circulation through heart

6. Arterial Pressure

a. Definition
b. Types of Pulse
c. Mean Arterial Pressure
d. Means of recording arterial pressure
e. Non-Invasive / Invasive
f. Korotkoff's Sound
g. Different Phases

7. ECG

a. Basics of ECG
b. ECG Machine
c. Various Leads
d. Positions of Electrode on human body
e. Review of conduction system
f. Normal ECG
g. Rhythm
h. How to calculate heart rate
i. P-R interval
j. QRS complex
k. Axis
l. P wave
m. Q wave
n. R wave
o. S wave
p. S-T segment
q. T wave

8. Abnormalities of ECG

a. Types infarction
b. Brady arrhythmias
c. Tachy arrhythmias
d. A-V blocks
e. Hypertrophy
f. Bundle branch blocks
g. Ventricular Arrythmia
h. ST-T Abnormalities

9. Tilt Test

a. Introduction & Indication
b. Methods

10. Holter Monitoring

a. Introduction & Indications
b. Processing and analysis

11. Ambulatory BP Recording

a. Introduction & Indications
b. Processing and analysis

Practical for Cardiovascular Techniques -I

1. Electrocardiogram Machine (ECG)
2. Position of Electrodes
3. Normal ECG
4. Abnormal ECG
5. Models of Cardiovascular System
6. Charts of Cardiovascular System
7. Slides for Heart Diseases and Circulatory System

CARDIOVASCULAR TECHNIQUES -II

Cardiovascular Techniques -II

8. Common diseases of cardiovascular system

- **Ischemic Heart Disease (IHD), Angina & its types**
- **Myocardial Infarction (MI),**
- **Hypertension (HTN)**
- **Congestive cardiac failure (CCF),**
- **Cardiogenic Shock.**
- **Cardiomyopathies**
- **Valvular Heart diseases**
- **Septal Diseases**
- **Fellot's tetralogy**

Arrythmias

- Tachycardia
- Bradycardia
- SVT
- Carotid Massage

2.Investigation related to the cardiovascular diseases

- ECG(Electrocardiogram)
- ETT (Exercise tolerance test)
- Echocardiography
- X-Ray Chest
- Cardiac Enzyme
- Trop T
- Lipid Profile
- Angiography
  - -Thalium Scan
  - -CT Angiography

3. Equipment/instruments used in cardiology

- ECG machine
- Echocardiography Machine
- ETT machine
- Holter Monitor
- Cardiac monitor
- Pulse Oximeter
- Defibrillators
- Oxygen concentrator/ cylinder

4. **Drugs Related to the cardiovascular diseases**

a. Nitrates
b.. Beta-Blockers
c. Ace-inhibitors
d. Calcium Channel Blockers
e. ARBs
f. Diuretics
g. Blood Thinners(asprin -Clopidogrel)
h. Statins

5. **Nuclear Cardiolo**

a. Introduction to Gamma Camera
b. Indications
c. Structure and parts of machine / Gama Camera
d. Hazards of Radiation
e. Radiation Safety (protection and protective devices)
f. Different Isotopes used for Cardiac Scanning

2. Cath Lab

a. Introduction to Angiography
b. Indications of Angiography
c. Making different views in angiography (procedure and positions)
d. Pacemaker – Temporary and Permanent
e. Pericardiocentesis
f. Complications of Angiography
g. Pre and post angiography care

3. Life Support Procedure

a. Basic Life Support (BLS)
b. Advance Critical Life Support (ACLS)

Practical Cardiovascular Techniques -II

1. Exercise Tolerance Test (ETT)
    - Introduction & Indication
    - How to prepare a patient for ETT
    - Contra indication of ETT
2. Cardiac Monitors and its practical applications
3. Pulse oximeter and its practical application
4. How to check blood pressure
5. How to check pulse and different places of pulses.
6. Carotid massage
7. Echocardiography and its applications

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	– Cell, Basic Tissue, Lymphatic System, Skin, Special Senses. – GIT, Respiratory System, Cardiovascular System, Skeletal System & Joints. – Nervous System, Reproductive System, Urinary System, Metabolism.	33 % 33% 33%	75
	Practical				25
2	Applied Sciences (Physics & Chemistry)	XI	Physics – (1-4) Science, Measurement, Mechanic & Gravity. – (5-8) Work & Energy, Machines, Density, Pressure. – (9-11) Heat, Light & Sound – (12-14) Electricity and Magnetism – (16) Electromagnetic Radiation Chemistry – (17- 19) Composition, Reactions, Gas Laws – (20-21) Water & Solutions – (22-24) Acid, pH, Electrolytes – (25-28) Amines, Proteins, Carbohydrates, Lipids.	50 % 10 % 10 % 10 % 10 % 10 % 50 % 10 % 10 % 10 % 10 %	50
	Practical		As per list given		25
3	Cardiovascular Technique - I	XI			100
	Practical		As per Curriculum		50
4	English	XI	As per approved syllabus for HSSC – I		100
5	Urdu		As per approved syllabus for HSSC – I		100
6	Islamic Education/Civics for non-Muslim		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
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 % 10 % 50 % 20 % 02 % 08 % 15 % 05%	75
3	Cardiovascular Technique - II	XII			100
	Practical		As per Curriculum		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