P.G. DIPLOMA IN CARDIAC ANESTHESIA TECHNOLOGY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - I

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Anatomy & Physiology	3	-	3	80	20
2	II	Pharmacology	3	-	3	80	20
3	III	Introduction to OT	3	-	3	80	20
4	IV	Anesthesiology Part- 1	3	-	3	80	20
PRACTICALS							
5	I	OT Procedures		8	3	100	--
6	II	Anesthesiology – 1		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN CARDIAC ANAESTHESIA TECHNOLOGY

SEMESTER – I

PAPER – I: ANATOMY AND PHYSIOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: INTRODUCTION TO ANATOMY & PHYSIOLOGY OF HUMAN BODY

1. Anatomical terminologies
2. Classification & organization of Human body
3. Structure and function of cells and different types of tissues
4. Mechanism of a cell

UNIT – II: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

5. Central nervous system
6. Sense organs
7. Respiratory System
8. Circulatory System and Blood

UNIT – III: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

9. The Digestive system
10. Excretory system
11. Endocrine system
12. Reproductive system

UNIT – IV: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

13. Muscular system
14. Skeletal system
15. Integumentory system
16. Fluid and electrolyte mechanism

PAPER – II: PHARMACOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I:INTRODUCTION

1. Introduction to pharmacology
2. Classification of drugs
3. Drug collection – Amount to be infused pediatric drug calculation
4. Flow rate/ drops per min

UNIT – II:CARDIAC DRUGS

5. Classification
6. Dose and Route
7. Action
8. Side effects & contra indication

UNIT – III: BRONCHODILATORS

9. Classification
10. Dose and Route
11. Action
12. Side effects Contraindications

UNIT – IV: DIURETICS

13. Classification
14. Dose and Route
15. Action
16. Side effects & Contraindications

PAPER – III: INTRODUCTION TO OT

Instruction: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: OT DEPARTMENT (DESIGNATION AREAS)

1. Physical set up of operation theatre
2. Placement of sterile , unsterile articles and equipment
3. Fumigation & Sterilization
4. Linen Management

UNIT – II: EQUIPMENT AND ITS HANDLING

5. Central gas pipeline system
6. Boyle's/ Anesthesia Apparatus
7. Intubation Equipment
8. Monitoring Equipment and Maintenance

UNIT – III: ESSENTIAL EQUIPMENT IN USE

9. C-arm
10. Ventilator
11. Cardiac Monitors and its accessories
12. Infusion Pumps

UNIT – IV: OT PROCEDURES

13. Surgical Hand Wash
14. Gowning and Gloving Masking
15. Pre Anesthetic tray preparation
16. Time –In – Time Out

PAPER – IV ANESTHESIOLOGY- I

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: PERIOPERATIVE PREPARATION

1. Records and forms used in OT
2. Scrutinize checklist of the patient
3. Right patient , Right site, Right operation
4. Check Vital Signs

UNIT – II RECEPTION OF PATIENT

5. Check name band and record
6. View X-Ray chest
7. View Blood Parameters
8. Check Skin Preparation at anesthesia site

UNIT – III - INITIATE STRAT UP ROUTINE

9. Check physical condition
10. Check whether NBO
11. Give Pre Medication
12. Transfer to operation table

UNIT IV– CANNULIZATION AND TRANSFUSION

13. Select appropriate site – prepare site
14. IV cannulization
15. IV Fluids
16. Blood transfusion

PRACTICALS

PAPER – I : OT PROCEDURES

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

1. Surgical Hand wash
2. Wearing cap , Mask & OT shoes
3. Gowning and Gloving Techniques
4. Disinfection of equipments and surfaces
5. Fumigation and Sterilization
6. Knowledge of drugs used, the action , reactions and contraindications
7. Monitoring

PAPER –II : ANESTHESIOLOGY – I

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

1. Knowledge of the drugs used , their action and contraindication
2. Receiving patient and checking (Check list)
3. Setting up Pre Anesthetic tray
4. Setting up Anesthetic Trolley
5. Setting up Boyle's Apparatus
6. Checklist scrutiny
7. IV cannulization
8. Blood Transfusion

P.G. DIPLOMA IN CARDIAC ANESTHESIA TECHNOLOGY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - II

S.N	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Computers & Soft Skills	3	-	3	80	20
2	II	Anesthesiology Part - 2	3	-	3	80	20
3	III	ICU Management	3	-	3	80	20
4	IV	Cardio Pulmonary Resuscitation (CPR)	3	-	3	80	20
PRACTICALS							
5	I	Computers & Soft Skills		8	3	100	--
6	II	Anesthesiology -2		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN CARDIAC ANESTHESIA TECHNOLOGY

SEMESTER – II

PAPER – I: COMPUTERS AND SOFT SKILLS

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I : COMPUTER

1. Introduction
2. Basic concepts
3. Use of computers in Medical Equipment in Cardiology

UNIT – II : USE OF MICROSOFT OFFICE

4. Ms-Word
5. Ms- Excel
6. Ms- Power point
7. Ms- Access

UNIT – III: COMMUNICATION

8. Process
9. Types of communication
10. Strategies for effective Communication
11. Barriers of communication

UNIT – IV: SOFT SKILLS

12. Importance of Soft Skills
13. Conversational English
14. Letter drafting
15. Extempore speaking

PAPER – II: ANESTHESIOLOGY PART -2

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: TYPES OF ANESTHESIA

1. General
2. Regional
3. Local
4. Spinal

UNIT – II: MONITORING DURING SURGERY

5. NIBP
6. SPO_2
7. ECG
8. $ETCO_2$

UNIT – III: SPECIAL MONITORING METHODS

9. Invasive monitoring techniques
10. Types –CVP ,
11. Procedure
12. Peripheral Nerve Stimulation (NM Junction)

UNIT – IV: ANESTHESIA RECORD KEEPING

13. Pre – Anesthetic evaluation record
14. Intra operative monitoring record
15. Post operative record (24hrs)
16. Chronological presentation and General statistics

PAPER – III: ICU MANAGEMENT

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: MECHANICAL VENTILATION

1. Definition, Types , setting of Ventilator Adult/ Child
2. Inotropes
3. Endotracheal Intubation /suctioning
4. Monitoring / Weaning

UNIT – II: CRITICAL CARE MONITORING

5. Preoperative complications and their management
6. Post operative immunization
7. Cardiac Intensive care
8. Shock

UNIT – III: ELECTROLYTE AND FLUID BALANCE

9. Normal fluid & electrolyte mechanism
10. Monitoring fluid volume deficit and excess
11. Management
12. Chart maintenance

UNIT – IV: OTHER PROCEDURES

13. Pace maker (Temporary / Permanent)
14. Extubation
15. Water seal drainage
16. Removal of drains

PAPER – IV: CARDIOPULMOANRY RESUSCITATION

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: BASIC LIFE SUPPORT

1. Assessment
2. ABC procedure
3. Drugs
4. First Aid

UNIT – II: ADVANCED CARDIC LIFE SUPPORT – ADULT

5. ABC protocol for adult
6. Drugs
7. Defibrillation
8. O2 Support

UNIT – III: CPR FOR CHILD

9. ABC Protocol for a Neonate
10. Assessment
11. Drugs
12. After care

UNIT – IV: CPR

13. ABC Protocol
14. Initial assessment
15. Call for help
16. Resuscitation

PRACTICALS

PAPER – I COMPUTERS & SOFT SKILLS

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

Soft Skills:

1. Presentation with the use of visual aids such as power point
2. Conversation
3. Extempore speech
4. Case studies and situational analysis
5. Survey and Reporting

Computer

1. Computer basis
2. MS – Office
3. MS - Word
4. MS – Excel
5. MS – Power Point

PAPER –II ANESTHESIOLOGY – PART -2

Instruction: 8 hrs/ week **U.E. Max. Marks: 100**

1. Assists the Anesthetist
2. Monitoring of vital signs , Spo2
3. Conducts ABG analysis
4. Has knowledge of types of Anesthesia required for different types of surgeries
5. Does a regular check of canula and drains
6. Maintain records and reports
7. Transportation of patient to SICU
8. Suctioning of Endotracheal tube / Tracheostomy tube
9. After care of equipment
10. Mechanical ventilation – Settings and modes
11. weaning from

P.G. DIPLOMA IN CARDIAC MEDICAL LAB TECHNOLOGY

INSTRUCTION & EXAMINATION W.E.F 2011-2012

SEMESTER - I

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Anatomy & Physiology	3	-	3	80	20
2	II	Basic Laboratory principles and procedures	3	-	3	80	20
3	III	Lab Equipment and Instruments	3	-	3	80	20
4	IV	Clinical Pathology & Chemistry	3	-	3	80	20
PRACTICALS							
5	I	Basic Lab Equipment and Procedures		8	3	100	--
6	II	Clinical Pathology & Chemistry		8	3	100	--
TOTAL			12	16		520	80

Note:

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SEMESTER – I

PAPER – I: ANATOMY AND PHYSIOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: INTRODUCTION TO ANATOMY & PHYSIOLOGY OF HUMAN BODY

8. Anatomical terminologies
9. Classification & organization of Human body
10. Structure and function of cells and different types of tissues
11. Mechanism of a cell

UNIT – II: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

5. Central nervous system
6. Sense organs
7. Respiratory System
8. Circulatory System and Blood

UNIT – III: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

17. The Digestive system
18. Excretory system
19. Endocrine system
20. Reproductive system

UNIT – IV: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

21. Muscular system
22. Skeletal system
23. Integumentory system
24. Fluid and electrolyte mechanism

PAPER – II : BASIC LABORATORY PRINCIPLES AND PROCEDURES

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I: LABORATORY SET UP & BASIC PRINCIPLES

1. Physical setup, types & various tests performed in the laboratory
2. Laboratory first aid measures & kit
3. Precautions to minimize infection
4. Laboratory mathematics

UNIT – II:DECONTAMINATION , DISINFECTON & DIPOSAL

5. Decontamination
6. Disinfection
7. Disposal of Medical waste
8. Equipment to eliminate hazards and safety signs

UNIT – III: TOTAL QUALITY MANAGEMENT

9. Total quality management
10. Essential elements of quality assurance program
11. Internal quality control
12. External quality control

UNIT – IV: SPECIMEN COLLECTION , PRESERVATION & TRANSPORTATION

13. Urine specimens & feces specimen
14. Blood
15. Ear, Eye, throat & mouth specimen
16. CSF Specimen, other body fluid

PAPER – III: LAB EQUIPMENT AND INSTRUMENTS

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I: GLASS WARE AND PLASTIC WARE

1. Types of glassware
2. Pipettring techniques & mixing
3. Care and maintenance
4. Automatic dispenses and dicutters

UNIT – II: SOLUTIONS & REAGENTS

5. Definitions and basic requirements for preparation of solutions & reagents
6. Normal solutions
7. Molar & percent solutions
8. Buffer solutions

UNIT – III: INSTRUMENTS AND LAB TECHNIQUES

9. Balances
10. Hotplate & magnetic stirrers
11. Centrifuge
12. Incubators & constant temperature bath

UNIT – IV: BASIC REQUIREMENT OF A LABORATORY

13. Microscope
14. Sterilization
15. Vacationers
16. Equipment necessary for placing , articles after washing

PAPER – IV: CLINICAL PATHOLOGY & CHEMISTRY

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I: CLINICAL PATHOLOGY: URINE AND ITS COMPOSITIONS

1. Preparation of a urine sample
2. Physical examination, specific gravity
3. Chemical examinations- Proteins including Bensen Jones proteins , Sugar, Bile & Blood
4. Microscopic Examination - For crystals , costs framed elements & parasites

UNIT – II: CLINICAL PATHOLOGY: BODY & BODY FLUIDS

5. Examination of Blood
6. Examination of Body fluids
7. Examination of faeces
8. Examination of pus & sputum

UNIT – III: CLINICAL CHEMISTRY: BODY FLUIDS

9. Physical examination
10. Chemical examination
11. Preservation of samples
12. Reporting & recording

UNIT – IV: CLINICAL CHEMISTRY: BLOOD/ FAECES , SPUTUM

13. Physical examination of feces & sputum
14. Chemical examination of blood , faeces / sputum
15. Preservation of samples
16. Reporting and Recording

PRATICALS

PAPER – I BASIC LAB EQUIPMENT AND PROCEDURES

Instruction : 3 h/w **U E Max Marks : 100**

1. Pipetting technique and mixing
2. Hand held mechanical pipettes (Push Button)
3. Preparation of solutions – Normal Solution
   - Percent solution
   - Standard solution
   - Norma saline solution
   - Buffer solution
4. Centrifuge (Separation of plasma from anticoaugulated blood)
   - Separation of serum from clotted blood

PAPER - II CLINICAL CHEMISTRY:

Instruction : 3 h/w **U E Max Marks : 100**

1. Specimen : Collection , presentation & transportation

2. Urine : Physical examination
: Chemical examination – Sugar, proteins Blood, chyle
: Microscopic examination : identification of crystals, costs, formed elements
and parasites etc.

3. Body Fluids : CSF, Pleural fluids , Synovial fluids, techniques for obtaining fluids and
presentation methods

: Physical ,Chemical & microscopic examination

4. Blood : Chemical Examination of Blood Glucose, cholesterol , Blood gas , examination , liver , function test and Blood Urea Nitrogen

P.G. DIPLOMA IN CARDIAC MEDICAL LAB TECHNOLOGY

INSTRUCTION & EXAMINATION W.E.F 2011-2012

SEMESTER - II

S.No	**Paper**	**Subject**	**Scheme of instruction hrs/ week**		**Scheme of examination**		
			L/T	**D/P**	**Duration in hours**	**Maximum Marks**	
						Univ Exam	**Sessional**
THEORY							
1	I	Microbiology	3	-	3	80	20
2	II	Haematology & Immuno Haematology	3	-	3	80	20
3	III	Blood banking and blood transfusion	3	-	3	80	20
4	IV	Cardiac profile test	3	-	3	80	20
PRACTICALS							
5	I	Microbiology & Cardiac profile test		8	3	100	--
6	II	Blood banking & Blood transfusion		8	3	100	--
TOTAL			12	16		520	80

Note:

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SEMESTER – II

PAPER – I : MICROBIOLOGY:

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I: INTRODUCTION TO MICROBIOLOGY

1. Definitions and Terminologies
2. Classification & Basic features of Bacteria
3. List of pathogenic / Microorganisms
4. List of pathogens causing diseases

UNIT – II: MORPHOLOGY & ANATOMY OF BACTERIA

5. Anatomy of bacteria
6. Cocci, Rob s(bacilli), vibrio, Spirilla & spirochetes
7. List of normal bacterial flora of the body
8. Identification of bacteria

UNIT – III: PREPARATION OF CULTURE MEDIA , PLATES

9. Inoculation of microorganisms
10. Preparation of nutrient agar plate
11. Preparation of agar slants
12. Preparation of culture plates and other & methods

UNIT – IV: STAINING METHODS

13. Alberts staining methods
14. Gran staining methods
15. Ziehl –Neilson Method
16. Acid fast staining Method

PAPER – II: HAEMATOLOGY& IMMUNO HAEMATOLOGY

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I : BLOOD STRUCTURE & FUNCTIONS , COLLECTIONS OF BLOOD

1. Phases of cell production
2. Functions of RBC,WBC, & Platelets
3. Venous, arterial and capillary blood collection
4. Vaccum tube system of blood collection

UNIT – II:REAGENTS AND ANTOCOAGULANT PREPARTION

5. Universal precautions
6. Reagent preparation
7. Anticoaugulant preparation
8. Routine hematological test
9. Vaccum tube system of blood collection

UNIT – III: HUMAN BLOOD GROUP SYSTEM

10. Blood group genetics
11. Main blood group system
12. ABO grouping methods
13. Bombay group

UNIT – IV: IMMUNO HEMATOLOGY

14. Rh typing
15. Cross matching
16. Direct, Indirect antiglobulin (Combs test)
17. Rho (D) typing

PAPER – III: BLOOD BANKING & BLOOD TRANSFUSION

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I: BLOOD BANKING

1. Blood bank set up
2. Motivation & selection of donors
3. History taking & Physical examination of donor
4. Pretransfusion testing, cross matching & problems of grouping
5. Main Blood Group Systems
6. ABO Grouping Methods
7. Clinically less significant blood group systems

UNIT - II: COLLECTION OF BLOOD

8. Basic requirement
9. Blood collection procedures
10. Instructions given to the donors after blood donation
11. Used for collected blood preservation
12.

UNIT – III: BLOOD STORAGE

13. Labeling
14. Storage (Procedure, Principles)
15. Changes in blood after storage
16. Record & documentation procedure

UNIT – IV: BLOOD TRANSFUSION

17. Whole blood –packed, fresh frozen plasma
18. Autologus transfusions
19. Exchange transfusions
20. Blood transfusions , reactions & manifestation

PAPER – IV: CARDIAC PROFILE TEST

Instruction : 3 h/w **U E Max Marks 80**
I A Max Marks 20

UNIT – I: GROUP 1 TESTS (Normal &Abnormal values)

1. Blood sugar (F) & (PP)
2. Serum of plasma , urea nitrogen
3. Serum creatnine
4. Serum electrolyte

UNIT – II: GROUP 2 TEST

5. Serum total cholesterol
6. Serum HDL – Cholesterol
7. Serum total cholesterol/HDL- Cholesterol ratio
8. Serum triglycerides
9. Serum VLDL&LDL

UNIT – III: GROUP 3 TEST (Cardiac draining)

10. Total CPK (Creatnine Phosphoknase)/ Panel test
11. SGOT
12. LDH
13. SHBD

UNIT – IV: GROUP 4 TEST

14. Serum Myoglobin
15. Serum X-1 acid Glyco protein

PRACTICALS

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

PAPER –I MICROBIOLOGY& CARDIAC PROFILE TEST :

1. Preparation of stains : Acid fast stain
   Gram stain
   Fontan's stain
   Alberts stain
   Ziehl – Nielsen Method

2. Preparation of 1. Culture media
   2. Nutrient agar plate
   3. Agar slants
   4. Culture plates

3. Determination of serum CK(CPK), CKMB

4. Determination of SGOT, LDH, Creatnine

PAPER – II BLOOD BANKING & BLOOD TRANSFUSION

Instruction: 8 hrs/ week **U.E. Max. Marks: 100**

Sample collection

1. Screening and selecting of donor
2. Grouping and cross matching
3. Blood collections procedures
4. Storage & transposition of Blood

P.G. DIPLOMA IN CARDIAC PULMONARY PHYSIOTHERAPY

SCHEME OF INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - I

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Anatomy & Physiology related to Cardiac pulmonary physiotherapy	3	-	3	80	20
2	II	Introduction to Heart problems and Surgery	3	-	3	80	20
3	III	Restrictive lung conditions	3	-	3	80	20
4	IV	Mechanical ventilation	3	-	3	80	20
PRACTICALS							
5	I	Cardio Respiratory Physiotherapy		8	3	100	--
6	II	Mechanical ventilation		8	3	100	--
TOTAL			12	16		520	80

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P.G. DIPLOMA IN CARDIAC PULMONARY PHYSIOTHERAPY

SEMESTER – I

PAPER – I: ANATOMY & PHYSIOLOGY RELATED TO CARDIAC PULMONARY PHYSIOTHERAPY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I [BRIEF STUDY ONLY INCLUDING TERMINOLOGY & DEFINITIONS]

1. Introduction to anatomical Terms & definitions
2. Organization of the human body
3. Positions
4. The cell tissue and organisms

UNIT – II: THE CIRCULATORY SYSTEM

5. The heart and its function
6. Systemic circulation
7. Coronary circulation
8. Cardiac Cycle

UNIT – III: THE RESPIRATORY SYSTEM

9. The Lungs and its function
10. Muscles of Respiration
11. Accessory muscles of respiration
12. Respiratory patterns

UNIT – IV: CARDIO PULMONARY ASSESSMENT

13. Assessment of lung fields – X Ray
14. Assessment of ECG
15. 2 D Echo

16. Physiotherapy

PAPER – II: INTRODUCTION TO HEART PROBLEMS & SURGERY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: CONGENITAL HEART DISEASES IN BRIEF

1. Types - Cyanotic &Acyanotic
2. Etiology
3. Surgical Management
4. Pre & Post Operative Physiotherapy

UNIT – II: CONGESTIVE CARDIAC FAILURE IN BRIEF

5. Definition
6. Etiology
7. Signs & symptoms
8. Treatment & Medical Management

UNIT – III: ISCHEMIC HEART DISEASE IN BRIEF

9. Definition
10. Etiology
11. Signs & Symptoms
12. Medical Management

UNIT – IV: CLOSED HEART & OPEN HEART PROCEDURES

13. Introduction
14. Type of surgery
15. Post operative management
16. Follow - up

PAPER – III: RESTRICTIVE LUNG CONDITIONS

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: ASSESSING LUNG CAPACITY

1. Definition
2. Types
3. Assessment
4. Management

UNIT – II: OBSTRUCTIVE LUNG DISEASE

5. Definition
6. Types
7. Assessment
8. Management

UNIT – III: COMPREHENSIVE PATIENT MANAGEMENT IN INTENSIVE CARE UNIT

9. Goals of management
10. Specialized Expertise of Cardio Pulmonary Therapist
11. Cardio Pulmonary Physical Therapy
12. Documentation

UNIT – IV: NON CLINICAL ASPECTS OF MANAGEMENT

13. Team work
14. Infection control
15. Patient – Oriented Care
16. Health Education

PAPER – IV: MECHANICAL VENTILATION

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: VENTILATOR

1. Definition
2. Types
3. Modes
4. Assisting in weaning

UNIT – II: ICU MONITORING

5. Vital signs
6. Blood Gas Analysis
7. Breathing Patterns
8. Air-way disease

UNIT – III : OXYGEN THERAPY

9. Assessment
10. Requirement
11. Mode of administration
12. Procedure

UNIT – IV: SUCTIONING

13. Assessment
14. Equipment
15. Procedure
16. Management

PRACTICALS

PAPER – I CARDIO – RESPIRATORY PHYSIOTHERAPY

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

1. Cardio Pulmonary Assessment
2. Cardiac monitoring
3. Suctioning of Airway
4. Chest Physiotherapy
5. Mobilization of patient
6. Body Positioning
7. Bagging & Instillation
8. Air-way clearance
9. Cardiac Pacing monitoring

PAPER - II VENTILATOR SETTING

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

1. Monitoring
2. Modes for obstructive air way disease
3. Assisted ventilation, Assisted control ventilation, Controlled, Mandatory ventilation, Volume control ventilation, Pressure control ventilation
4. Assisting in weaning from ventilator

P.G. DIPLOMA IN CARDIAC PULMONARY PHYSIOTHERAPY

SCHEME OF INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Pre Operative preparation	3	-	3	80	20
2	II	Cardio Pulmonary Procedures	3	-	3	80	20
3	III	Cardio Pulmonary Resuscitation	3	-	3	80	20
4	IV	Rehabilitation	3	-	3	80	20
PRACTICALS							
5	I	Cardio Pulmonary Procedures		8	3	100	--
6	II	Rehabilitation		8	3	100	--
TOTAL			12	16		520	80

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P.G. DIPLOMA IN CARDIAC PULMONARY PHYSIOTHERAPY

SEMESTER – II

PAPER – I : PRE – OPERATIVE PREPARATION

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: PRE- OPERATIVE PREPARATON

1. Breathing Exercise
2. Procedure – cupping/ vibration
3. Coughing
4. Health education

UNIT – II: POST – OPERATIVE PHYSIOTHERAPY

5. Positioning
6. Physiotherapy
7. Active Cycle breathing techniques
8. Monitoring

UNIT – III: POSTURAL DRAINAGE

9. Definition
10. Etiology
11. Signs & Symptoms
12. Treatment

UNIT – IV: MOBILIZATION

13. Assessment
14. Teaching about mobilization
15. Management
16. Follow up

PAPER – II: CARDIO – PULMONARY PROCEDURES

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: MOBILIZATION AND EXERCISE

1. Assessment
2. Teaching by stages
3. Management
4. Follow up

UNIT – II: CHEST PHYSIOTHERAPY TECHNIQUES IN ICU

5. Assessment
6. Plan the course
7. Teaching stages in coughing [4 stages]
8. Management

UNIT – III: CHEST DRAINAGE

9. Assessment
10. Positioning
11. Assisting with tube changing
12. Teaching to patient

Unit – IV: CARDIO PULMONARY DYSFUNCTION

13. Introduction
14. Assessment
15. Positioning
16. Physiotherapy [breathing exercise]

PAPER – III: CARDIO PULMONARY RESUSCITATION

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: CPR FOR ADULT PATIENTS

1. Air way
2. Breathing
3. Circulation
4. Management

UNIT – II: CPR FOR A CHILD

5. Air way
6. Breathing
7. Circulation
8. Management

UNIT – III: CPR FOR A NEONATE

9. Air way
10. Breathing
11. Circulation
12. Management

UNIT – IV: EMERGENCY DRUGS

13. Muscle relaxants
14. Inotropic drugs
15. Dobutamine
16. Dopamine
17. Epinephrine
18. Naloxone

PAPER – IV: REHABILITATION

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: REHABILITATION

1. Definition
2. Life style modification
3. Exercise prescription
4. Health Education

UNIT – II: RESPIRATORY CARE

5. Respiratory Muscle Fatigue
6. Respiratory Muscle Weakness
7. Muscle endurance
8. Inspiratory Muscle Training

UNIT – III: REHABILITATION IN CHRONIC CARDIO-PULMONARY DYSFUNCTION

9. Chronic Air flow limitation
10. Patho physiology
11. Principles of Physical Therapy Management
12. Medical and Physcial Management

UNIT – IV: CARDIO PULMONARY PHYSICAL THERAPY

13. Cardio Pulmonary development in the foetus
14. Cardio Pulmonary considerations in Pre-term
15. Common Paediatric problems infant
16. Physical Therapy Treatment Approaches

PRACTICALS

PAPER – I CARDIO PULMONARY PHYSICAL THERAPY PROCEDURES

Instruction : 8 hrs/ week **U.E. Max Marks : 100**

1. Mobilization & Exercise
2. Body positioning
3. Air-way Clearance Techniques/ Manual Hyperinflation
4. Coughing Techniques – Assisted
   - Non assisted
5. CPR – Adult, Child, Neonate
6. Pulmonary Function Test

PAPER – II REHABILITATION

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

1. CPR
2. Assisting and Training for Mobilization and Exercise – Long Terms
3. Achieve Cycle Breathing Technique [ACB] responses
4. Manual assisted cough techniques

P.G. DIPLOMA IN MEDICAL RESEARCH ASSISTANT

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER – I

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Computer and soft skills	3	-	3	80	20
2	II	Biostatistics in Research	3	-	3	80	20
3	III	Epidemiology	3	-	3	80	20
4	IV	Research Methodology – I	3	-	3	80	20
PRACTICALS							
5	I	Introduction to Research		8	3	100	-
6	II	Research Methodology-I		8	3	100	-
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN MEDICAL RESEARCH ASSISTANT

SEMESTER – I

PAPER – I: COMPUTER & SOFT SKILLS

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: COMPUTER

1. Introduction
2. Basic concepts
3. Uses of computer in Research

UNIT – II: USE OF MICRO SOFT

4. MS- Word
5. MS- Excel
6. MS- Power point
7. MS- Access

UNIT – III: IMPORTANCE OF COMMUNICATION

8. Communication process
9. Types
10. Strategies fro effective communication
11. Barriers of communication

UNIT – IV: SOFT SKILLS

12. Importance of soft skills
13. Conversational English
14. Letter drafting
15. Extempore speaking

PAPER – II – BIOSTATISTICS IN RESEARCH

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: BASICS OF BIOSTATISTICS

1. Meaning principles and common technologies f Biostatistics
2. Vital & health statistics (Sources & uses)
3. Seals of Measurements
   - Nominal scale
   - Ordinal scale
   - Ratio scale
   - Interval scale
4. Graphical Representative
   - Histogram
   - Frequency polygon
   - Line graph
   - Pictogram or picture diagram
   - Map diagram or spot map
   - Pic charts or sector graphs
   - Cumulative frequency graph

UNIT – II: DESCRIPTIVE ANALYSIS

5. Frequency distribution, percentages & proportions
6. Measures of central tendency - Mean, GM and HM, Median & Mode
7. Measures of variability - Range, Mean deviation, Standard deviation, variance. Concept of covariance.
8. Measures of relationship between two or more variable : correlation coefficient

UNIT – III: INFERENTIAL STATISTICS

9. Chi square, 't' test (single sample, independent sample and correlation coefficient), fishers exact test
10. Pearson "R" product moment correlation (deviation method), spear man or rank difference correlation
11. Analysis of variance (ANOVA,) Two way Anova and "F" test
12. Multiple comparison procedure

UNIT – IV: STATISTICAL ANALYSIS

13. Feasibility
14. Validity
15. Reliability
16. Statistical significance-one and two tail.

PAPER – III: EPIDEMIOLOGY

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: INTRODUCTION

1. Definition , Terminologies, Epidemiological triad
2. Evolution of Epidemiology
3. Uses of Epidemiology
4. Application of epidemiology to communicable and Non communicable disease

UNIT – II: EPIDEMIOLOGICAL METHODS – I

5. Types of epidemiology - Descriptive, Analytical
6. Experimental
7. Clinical Epidemiology
8. Epidemiology in public health practice

UNIT – III: EPIDEMIOLOGICAL METHODS – II

9. Immunity – Natural History of disease
10. Public Health surveillance
11. Disease investigation , International Health Regulation
12. Integrated Disease Surveillance Project

UNIT – IV: EPIDEMIOLOGICAL METHODS – III

13. Outbreak investigation & Field data
14. Health information systems
15. Designing , case studies
16. Monitoring and evaluation

PAPER – IV: RESEARCH METHODOLOGY-I

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: INTRODUCTION TO RESEARCH

1. Definitions , Importance & Need for research
2. Problem solving in research
3. Research process & classification of research
4. Ethics in research

UNIT – II: LITERATURE REVIEW

5. Definitions, purposes and objective of ROL
6. Primary & secondary sources of ROL
7. Skills needed for review literature
8. Steps in ROL

UNIT – III: CONCEPTUALIZING

9. Selecting a research problem
10. Formulating the research problem
11. Operational , definitions , assumptions
12. Variables , Limitations and distributions

UNIT – IV: HYPOTHESIS

13. Definitions, purposes
14. Characteristics & elements of hypothesis
15. Types of Hypothesis: Null & Alternative, Critical Region &Two types of errors.
16. Formulation of Hypothesis

PRACTICALS

PAPER- I. COMPUTERS & SOFT SKILLS

Instruction : 8 hrs/ week **U.E Max. Marks: 100**

Soft skills :

1. Presentation with the use of visual aids such as power point
2. Conversation
3. Extempore Speech
4. Case studies and situational analysis
5. Survey and reporting

Computers :

6. Computer basics
7. MS-Office
8. MS – Word - Type a word document on ethics in research
9. MS- Excel – Graphical representation of research
10. MS – Power point – Prepare a power point presentation on importance of research

PAPER –II BIOSTATISTICS & RESEARCH METHODOLOGY - 1

Instruction : 8 hrs/ week **U.E Max. Marks: 100**

1. Select and formulate a research problem
2. formulate hypothesis for a problem statement
3. Develop operational definitions , Assumptions , limitations and delimitations
4. Review literature –
5. Collect abstracts , selected research problems

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER – II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Research methodology –II	3	-	3	80	20
2	II	Data Analysis I	3	-	3	80	20
3	III	Data Analysis -II	3	-	3	80	20
4	IV	Reporting the research findings	3	-	3	80	20
PRACTICALS							
5	I	Research methodology II, III, IV		8	3	100	-
6	II	Reporting the Research Findings		8	3	100	-
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN MEDICAL RESEARCH ASSISTANT

SEMESTER – II

PAPER – I: RESEARCH METHODOLOGY - II

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: RESEARCH DESIGN

1. Definitions , uses and purpose of research designs
2. Elements of research design &criteria for selecting a research design
3. Types of research designs – Qualitative & Quantitative
   Quantitative – Experimental : True, Quasi , Pre experimental
   -Non Experimental : Historical , Survey research
4. Qualitative : Ethnography , Phenomenology , Grounded theory

UNIT – II: SAMPLING

5. Definitions , common technologies , uses & characteristics of sampling
6. Types of sampling - 1. Probability sampling : a) Simple random sampling , Stratified random sampling, Systematic sampling , cluster or Multistage sampling
7. Non probability sampling : Convenient sampling ,Purposive/ Judgmental, Quota , Snowball/ network sampling
8. Sampling errors / Non sampling errors & sampling bias

UNIT – III: CONSTRUCTING RESEARCH INSTRUMENTS

9. Rating Scale
10. Preparation of Questionaire
11. Intervention protocol
12. Observation checklist
13. Pilot study and validation.

UNIT – IV: COLLECTION OF DATA

14. Definitions, various sources of data
15. Self reports – Interview, Questions (Structured / Unstructured)
16. Observation – Structured , Unstructured
17. Standard tests – Personality , Aptitude, Intelligence, Projective tests

PAPER – II: DATA ANALYSIS - I

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: DESIGNING SAMPLING PLAN

1. Identifying
2. Selecting sample
3. Plan for pilot study, data collection
4. Pilot study & validation

UNIT – II: TABULATING DATA

5. Organize data
6. Tabulating data
7. Use of dummy table (Shells)
8. Data coding

UNIT – III: METHODS OF MANAGING DATA

9. Data Cleaning
10. Computer programming
11. Manual Methods
12. Data sets for analysis

UNIT – IV: INTERPRETATION OF DATA

13. Descriptive statistics, Mean, Median, Mode, GM, HM.
14. Inferential statistics
15. Frequency Distribution
16. Graphical representation

PAPER – III: DATA ANALYSIS - II

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: TESTING THE HYPOTHESIS

1. Testing of Hypothesis
2. Confidence levels
3. Confidence intervals
4. Level of significance Type –I & Type II errors

UNIT – II: TESTING DIFFERENCES BETWEEN TWO OR MORE GROUPS

5. T-Test
6. Paired T-Test / Unpaired
7. Non parametric two group test
8. ANOVA (For three or more groups) applying.

UNIT – III: APPLYING MULTIVARIATE STATISTICAL ANALYSIS TO DATA COLLECTION

9. Uses
10. Regression analysis
11. Linear Regression
12. Analysis of co – variance

UNIT – IV: INTERPRETATION OF RESULTS

13. Credibility
14. Meaning of the results
15. Interpreting hypothesized results and unhypothesized significant results and mixed results
16. Reporting the results

PAPER – IV: REPORTING RESEARCH FINDINGS

Instruction : 3 hrs/ week **U.E Max. Marks: 80**
I.A. Max. Marks: 20

UNIT – I: REPORTING RESEARCH FINDINGS

1. Getting started (Preparation)
2. Developing the plan
3. Deciding on content
4. Writing the report

UNIT – II: CONTENT OF RESEARCH REPORT

5. Introduction
6. Literature review and conceptual frame work
7. Research design
8. Statistical finding of results and discussions

UNIT – III : TYPES OF RESEARCH REPORTING

9. Thesis and Dissertations
10. Articles for journals
11. Proposal
12. Presentation at conferences

UNIT – IV : REVIEW GOLD MARK RESEARCH STUDIES

13. Tuberculosis sample study
14. National Family Health Survey
15. National Program Surveillance of communicable diseases
16. Revised National Tuberculosis control program (RNTCP)

PRACTICALS

PAPER - I. RESEARCH METHDOLOGY& DATA ANALYSIS

Instruction : 8 hrs/ week **U.E Max. Marks: 100**

1. Construct Research design,
2. Construct an Experimental study
3. Construct a Quasi experimental study
4. Construct different types of research instruments and tools
5. Formulate and interview schedule for data on hospital patients
6. projects – Short study (2) & long study –(1) & collection date

PAPER - II. REPORTING OF RESEARCH

Instruction : 8 hrs/ week **U.E Max. Marks: 100**

1. Write the report findings of short study and long study
2. Maintain a Bibliography file on research studies of interest
3. Maintain a bibliography file on Gold mark studies
4. Critiquing studies (Colleagues + Others)
5. Power point presentation of the findings of the Pilot study and projects conducted

P.G. DIPLOMA IN OPERATION THEATRE TECHNIOLOGY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - I

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Anatomy & Physiology	3	-	3	80	20
2	II	Basic sciences	3	-	3	80	20
3	III	Introduction to OT Techniques	3	-	3	80	20
4	IV	Computers & Soft Skills	3	-	3	80	20
PRACTICALS							
5	I	Basic Sciences/ OT Techniques		8	3	100	--
6	II	Computers & Soft skills		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN OPERATION THEATRE TECHNIOLOGY

SEMESTER – I

PAPER – I: ANATOMY AND PHYSIOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: INTRODUCTION TO ANATOMY & PHYSIOLOGY OF HUMAN BODY

12. Anatomical terminologies
13. Classification & organization of Human body
14. Structure and function of cells and different types of tissues
15. Mechanism of a cell

UNIT – II: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

5. Central nervous system
6. Sense organs
7. Respiratory System
8. Circulatory System and Blood

UNIT – III: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

25. The Digestive system
26. Excretory system
27. Endocrine system
28. Reproductive system

UNIT – IV: DEFINITIONS, TERMINOLOGIES, STRUCTURE AND FUNCTION

29. Muscular system
30. Skeletal system
31. Integumentory system
32. Fluid and electrolyte mechanism

PAPER – II: BASIC SCIENCES

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: GENERAL (CLINICAL METHODLOGY)

a. Haemostasis
b. Gas transportation
c. Capillary exchange
d. Glom ruler filtration

UNIT – II: CLINICAL PHARMACOLOGY

e. Classification of Drugs
f. Action; side effects and contraindications
g. Emergency drugs, Action, side effects, and contraindications
h. Pre- operative Medications

UNIT – III: CLINICAL CHEMISTRY

i. Types of Physical and chemical reactions
j. Oxidation & reduction its importance and properties with reference to the physiological system
k. Applications of Radio-active elements
l. Electrolytes – their properties and application

UNIT – IV: INFECTION CONTROL MEASURES

m. Carbolization of OT
n. Sterilization of equipment & instruments, Gowns & Drapes
o. Sterile techniques and their application
p. Biomedical waste disposal

PAPER – III: INTRODUCTION TO OT TECHNIQUES

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: SURGICAL AWARENESS

1. Positioning for various operations
2. Equipment & Articles used in OT – Boyles apparatus, Defibrillator
3. Preparation of emergency drugs
4. Preparation of patient

UNIT – II: DRAINS AND CATHETERS

5. Inter costal drainage
6. Water seal drainage
7. Catheterization
8. Nasogastric tube drainage

UNIT – III: INTRA VENOUS THERAPY

9. Selection of ideal site
10. IV transfusion
11. Fluids transfused – Isotonic, Hypertonic, Hypotonic, TPN (Parental), Blood and plasma expanded .
12. Arterial cannulization, Central Venous Pressure & Technique

UNIT – IV: PATIENT RELATED SERVICES

13. Transporting & Transforming
14. Pre operative check at OT
15. Time in, Time out
16. Patient chart & records

PAPER – IV: COMPUTERS AND SOFT SKILLS

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: COMPUTER

17. Introduction
18. Basic concepts & uses of computers in OT
19. Documentation
20. Legal issues

UNIT – II: USE OF MICROSOFT OFFICE

21. M.S- Word
22. M.S- Excel
23. M.S- Power point
24. MS - Access

UNIT – III: IMPORTANCE OF COMMUNICATION

25. Process
10. Methods
11. Strategies of Communication
12. Barriers to Communication

UNIT – IV: SOFT SKILLS

13. Importance of Soft Skills
14. Conversational English
15. Letter drafting
16. Extempore speaking

PRACTICALS

PAPER – I BASIC SCIENCES & OT TECHNIQUE

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

I

1. Injections techniques IM/ IV,
2. Anesthesia trolley set up
3. Carbolizaton of OT , other surfaces
4. Sending packs for sterilization – Instrument sets, Gown packs, drape, packs
5. Hand washing
6. Biomedical waste disposal
7. Assisting for introduction of Endotracheal tube

II.

1. Positioning
2. Emergency drug uses
3. Water seal drainage
4. I.G. Aspiration
5. I.V. Transfusion
6. Infection control practices

PAPER-II COMPUTERS & SOFT SKILLS

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

Soft Skills:

6. Presentation with the use of visual aids such as power point
7. Conversation
8. Extempore speech
9. Case studies and analysis
10. Survey and Reporting

Computer

6. Computer basis
7. MS – Office
8. MS - Word
9. MS – Excel
10. MS – Power Point

P.G. DIPLOMA COURSE FOR OPERATION THEATRE TECHNOLOGY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	O.T. Techniques	3	-	3	80	20
2	II	Major Investigations in OT	3	-	3	80	20
3	III	Other special procedures in OT	3	-	3	80	20
4	IV	Anaesthesiology Assistance	3	-	3	80	20
PRACTICALS							
5	I	OT Techniques		8	3	100	--
6	II	OT Procedures		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA COURSE FOR OPERATION THEATRE TECHNOLOGY

SEMESTER - II

PAPER – I: OPERATION THEATRE TECHNIQUES

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: RESPIRATORY MEASURES

1. Respiratory monitoring methods
2. O_2 Therapy
3. Methods of O_2 inhalation
4. Devices used for O2 therapy

UNIT – II: AIR- WAY MONITORING

5. Suctioning air-way
6. Endotracheal tube
7. Naso tracheal /Trans tracheal
8. Suctioning procedures

UNIT –III SETTING UP ENDOTRACHEAL TRAY

1. Contents & uses
2. Procedure
3. Assisting for procedure
4. After care of instruments

UNIT -IV SPECIMEN COLLECTION

5. Identification of specimen
6. Different types of specimen collection
7. Labeling &
8. Documentation

PAPER – II: MAJOR INVESTIGATIONS IN OT

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: TRACHEOSTOMY

THORACOCENTESIS

a. Sternal puncture
b. Lumbar puncture
c. Resection
d. Preparation of the patient

PARACENTISIS

5. Setting up the Tray
6. Procedure
7. Preparation of the patient

UNIT – II: ENDOSCOPY

7. Types , objectives
8. Preparation of the patient
9. Setting up of the tray
10. Procedure

UNIT – III: SIGMOID THERAPY /

11. Definitions , Objectives
12. Preparation of the patient
13. Tray Setting
14. Procedure

UNIT – IV: DILATATION AND CURETTAGE

15. Definitions , Objectives
16. Preparation of the patient
17. Tray Setting
18. Procedure

PAPER – III: EQUIPMENT AND CARE IN OT

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I:GENERAL SURGICAL INSTRUMENTS

1. Sharp instruments
2. Haemostasis
3. Tissue & Thumb forceps
4. Needles & Needle holders

UNIT – II: SUTURE & LIGATION

5. Absorbable suture
6. Non Absorbable ligature & suture
7. Synthetic non absorbable suture
8. Definition
9. Tray setting
10. Procedure
11. Specimen collection

UNIT – III: OPERATING MICROSCOPES

12. Advantages
13. Types of operating microscopes
14. Cure and maintenance
15. Preparation of microscope for operation

UNIT – IV: SPECIAL EQUIPMENT

16. Surgical diathermy
17. Ultra sonic equipment
18. Electric and pipeline suction units

PAPER – IV: ANAESTHESIOLOGY ASSISTANCE

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: METHODS OF ANAESTHESIA

1. General
2. Spinal
3. Local
4. Blocks

UNIT – II: ANAESTHETIC DRUGS

5. Types
6. Indication, uses and antidotes
7. Contraindications
8. Tray setting

UNIT – III: ANAESTHESIA EQUIPIMENT

9. Intubation types
10. Centralized pipeline systems
11. Safety techniques to be followed

UNIT – IV: CARDIO PULMONARY RESUSCITATION FOR ADULT / CHILD/ NEONATES

A] ASSESSMENT

12. Vital signs
13. Monitoring
14. Call for help
15. Resuscitation

PRACTICALS

Instruction : 8 hrs/ week **U.E. Max. Marks: 100**

PAPER - I. OPERATION THEATRE TECHNIQUES

1. Placement of OT equipment
2. Fumigation and carbolization of OT
3. Preparing packs for operations
    - ENT
    - Adbominal surgery
    - Cardiac surgery
    - Obstetric & Gynaec surgeries
    - Orthopaediac surgeries
4. Suctioning of air-way
5. Collection and Labelling of specimens
6. Assisting for Major procedures
    - Tracheosotomy
    - Abdominal paracentesis
    - Thorococentesis
7. Monitoring

PAPER - II. OT PROCEDURES

Instruction : 3 hrs/ week **U.E. Max. Marks: 100**

1. Setting up the Anesthesia apparatus
2. ECG monitoring
3. Trolly setting
4. Prepare drug period
5. Assisting with intubation
6. Assisting for Spinal & Local Anesthesia
7. C.P.R

P.G. DIPLOMA IN PERFUSION TECHNOLOGY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - I

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Basic Medical Sciences	3	-	3	80	20
2	II	Hematology & Immuno Hematology	3	-	3	80	20
3	III	Pharmacology,	3	-	3	80	20
4	IV	Introduction to operation theatre	3	-	3	80	20
PRACTICALS							
5	I	Familiarization with Basic Medical Sciences		8	3	100	--
6	II	OT Procedures		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN PERFUSION TECHNOLOGY

SEMESTER-I

PAPER – I: BASIC MEDICAL SCIENCES

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT –I ANATOMY & PHYSIOLOGY

1. Anatomical Terms/ position of the human body
2. Systems of the Human Body
3. Structure & function of a cell
4. Types of tissues

UNIT –II THE CIRCULATION SYSTEM

5. Anatomy of the Heart
6. Systemic and pulmonary circulation
7. Coronary circulation
8. Cardiac output

UNIT – III: BLOOD

9. Blood & its components
10. Functions of RBC, WBC& platelets
11. Electrolytes normal & serum concentration
12. Blood coagulation

UNIT – IV: BLOOD GASES

13. Oxygen calculation
14. Carbon dioxide
15. Acidosis & Alkalosis
16. Abnormal blood gas correction

PAPER – II:HEMATOLOGY & IMMUNO-HEMATOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: BLOOD VALUES

1. Red Blood cells
2. White Blood cells
3. Platelet count
4. Coagulation tests

UNIT – II:BLOOD TYPES

5. Types of Blood
6. ABO Types & reactions
7. Blood products information
8. Rh,+ve & -ve importance

UNIT – III:IMMUNO HEMATOLOGY

9. Blood grouping
10. Cross matching
11. Rh- typing
12. Blood group genetics

UNIT – IV: BLOOD TRANSFUSION

13. Blood products storage , use and reactions to administer blood
14. Blood conversation techniques
15. Autologus Blood
16. Auto transfusion blood processors – washes

PAPER – III: PHARMACOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: PHARMACOLOGY

1. Classification of drugs
2. Drug Calculation
3. Drugs commonly use in Perfusion
4. Pharmacokinetics of drugs

UNIT – II: ANTICOAUGULANTS & ANTICOAUGULANT ANTAGONISTS

5. Indication
6. Action
7. Site of action
8. Dosage

UNIT – III: PLATELET INHIBILITY DRUGS, FIBRINOLYTICS & THROMBOLYTICS & FIBROLYTIC INHIBITORS

9. Indication
10. Action
11. Site of action
12. Dosage

UNIT – IV: CARDIAC GLYCOSIDES & CARDIAC INOTROPIC AGENTS

13. Indication
14. Action
15. Site of action
16. Dosage

PAPER – IV: INTRODUCTION TO OPERATION THEATRE

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: OPERATION THEATRE

1. Physical setup
2. Fumigation
3. Stabilization
4. Placement of sterile & Non sterile articles

UNIT – II: EQUIPMENT & ITS HANDLING

5. Linen management
6. Central gas pipeline system
7. Blood pumps
8. Handling Equipment related to perfusion

UNIT – III: ASEPTIC TECHNIQUES

9. Surgical hand washing
10. Gowning
11. Gloving
12. Masking

UNIT – IV: PREPARATIONOF R/T probe

13. Consent
14. Preoperative checklist
15. Preparation of the perfusion equipment
16. Monitoring & Maintenance of equipment

PRACTICALS

PAPER – I FAMILIARIZATION WITH BASIC MEDICAL SCIENCES

Instruction : 3 hrs/ week **U.E. Max. Marks: 100 marks**

PAPER – I :

1. **Anatomy**
2. **Physiology**
3. **Biochemistry**

PAPER – II : OT PROCEDURES

Instruction : 3 hrs/ week **U.E. Max. Marks: 100 marks**

1. **OT procedures – setting up of heart lung machine**
2. **Sterile Techniques**

Operation of control system

P.G. DIPLOMA IN PERFUSION TECHNOLOGY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - II

S.No	**Paper**	**Subject**	**Scheme of instruction hrs/ week**		**Scheme of examination**		
			L/T	**D/P**	**Duration in hours**	**Maximum Marks**	
						Univ Exam	**Sessional**
THEORY							
1	I	Introduction to perfusion and Basic Anaesthesia	3	-	3	80	20
2	II	Equipment , Heart and Lung machine, oxygenator, IABP	3	-	3	80	20
3	III	Echocardiography, instrumentation & hypothermia in Perfusion technology	3	-	3	80	20
4	IV	Myocardial Protection, Blood Gas, Perfusion Procedures & Perfusion In Pediatrics	3	-	3	80	20
PRACTICALS							
5	I	Role of the Perfusionist		8	3	100	--
6	II	Special Perfusionist procedures		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN PERFUSION TECHNOLOGY

SEMESTER –II

PAPER – I: INTRODUCTION TO PERFUSION AND BASIC ANESTHESIA

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: EVOLUTION OF CARDIOPULMONARY BYPASS

1. History of CPB
2. Development of CPB
3. Conducting
4. Component of cardiopulmonary bypass - Tubing , Pumps

UNIT –II;CONDUCT OF PERFUSION

5. Circuit
6. Cannulation
7. Monitoring during procedure
8. Chart maintenance

UNIT III:PERFUSION SAFETY

9. Equipment, Safety devices
10. Conduct of perfusion
11. Surgical techniques
12. Vigillence & communicating with in the quality room

UNIT IV :PRIMING SOLUTION

13. Hemodilation & priming solution
14. Crystalloid & colloid s on priming solution
15. Clinical efficiency and safety
16. Selection of priming solution

PAPER –II EQUIPMENT-,HEART LUNG MACHINE, OXYGENATOR & IABP

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT-I : HEART LUNG MACHINE

1. Definition & purposes of Heart Lung machine
2. Tubing
3. Pumps – Roller pump, Centrifugal pumps
4. Surgical procedure for which heart lung machine is used

UNIT-II OXYGENATOR

5. Function of oxygenation
6. Types of oxygenators – Rotating disc oxygenate , Bubble oxygenation , Membrane oxygenator
7. Advantages / Disadvantages
8. Types A membranous used in oxygenator

UNIT-III EXTRA CORPORAL MEMBRANE OXYGENATION DURING EMCO

9. Definition
10. Indications
11. Types of ECMO support
12. ECMO set up

UNIT -IV - IABP

13. History
14. Indication
15. Contraindications
16. Complications

PAPER – III: ECHOCARDIOGRAPHY, INSTRUMENTATION & HYPOTHERMIA IN PERFUSION TECHNOLOGY

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT –I ECG- 1

1. Electro cardiogram
2. Basic ECG concepts
3. 12 lead system
4. ECG for children

UNIT –II ECG-2

5. Reading a normal ECG
6. Reading a abnormal ECG & Interoperating it
7. Recognition of Myocardial infarction, basic
8. Arrhythmias and conduction disturbances

UNIT-III : INSTRUMENTATION IN PERFUSION TECHNOLOGY

9. Filters
10. Pressures transducers
11. Thermistors
12. Cardiac output components

UNIT IV HYPOTHERMIA

13. Classification
14. Signs and symptoms
15. Causes
16. Management

PAPER IV: MYOCARDIAL PROTECTION, BLOOD GAS, PERFUSION PROCEDURES & PERFUSION IN PEDIATRICS

Instruction : 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT –I : MYOCARDIAL PROTECTION

1. Myocardial Protection-
   - Preoperative phase
   - Operative phase – Global Myocardial Ischemic tissue
     - Re-perfusion
   - Post operative phase
2. Types of cardioplegia

3. Cardioplegia delivery devices
4. Protection in the failing heart

UNIT-II ARTERIAL BLOOD GAS ANALYSIS

3. Extraction & Analysis
4. Calculation
5. Acid base management
6. Normal valves

UNIT-III PERFUSION PROCEDURES

7. Special perfusion procedures
8. Aortic arch repair
9. Retrograde & Ante grade cerebrialpelgia
10. Ventricular Assit device
11. Total circulator arrest

UNIT IV PERFUSION IN PEDIATRICS

12. Pediatric perfusion
13. Cardiopulmonary bypass in infants and children
14. Pediatric extracorporeal circuit
15. Ultra filtration technique
16. Adequate of perfusion

PRACTICALS

PAPER - 1. ROLE OF PERFUSIONIST

Instruction : 3 hrs/ week **U.E. Max. Marks: 100 marks**

1. Cannulation
2. Check list
3. Monitoring drug perfusion
4. Risk assessment
5. Assisting for cardiac anesthesia
6. Setting up the Heart lung Machine
7. Introduction of IABP

PAPER –II SPECIAL PERFUSION PROCEDURES

Instruction : 3 hrs/ week **U.E. Max. Marks: 100 marks**

1. Check list
2. Assessment
3. Monitoring drug perfusion
4. Setting of special equipment
5. Chart Monitoring
6. Drug Calculation

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SCHEME OF INSTRUCTION AND EXAMINATIONS W.E.F 2011-2012
SEMESTER - I

S.No	**Paper**	**Subject**	**Scheme of instruction hrs/ week**		**Scheme of examination**		
			L/T	**D/P**	**Duration in hours**	**Maximum Marks**	
						Univ Exam	**Sessional**
THEORY							
1	I	Anatomy & Physiology of the Cardio-vascular system	3	-	3	80	20
2	II	Electrocardiography & CPR	3	-	3	80	20
3	III	Cardiology devices & Interventions	3	-	3	80	20
4	IV	Computers & Soft skills	3	-	3	80	20
PRACTICALS							
5	I	Computers & Soft skills		8	3	100	--
6	II	Basic Diagnostic & Medical science		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SEMESTER – I

PAPER – I : ANATOMY & PHYSIOLOGY OF THE CARDIO-VASCULAR SYSTEM

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: ANATOMY OF HEART

a. Contents of the Thorax
b. Anatomy of the heart
c. Physiology of the heart
d. Conduction of the heart

UNIT – II: ANATOMY AND PHYSIOLOGY OF THE BLOOD VESSELS

a. The Arteries , Veins & Capillaries
b. The Superior vena cava
c. The Inferior vena cava
d. The aorta and its branches

UNIT – III: THE CIRCULATORY SYSTEM

a. The fotal circulation
b. The pulmonary circulation
c. The Systemic circulation

UNIT – IV: THE CORONARY SYSTEM

a. The coronary arteries
b. The coronary veins
c. The coronary sinus
d. Coronary circulation

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SEMESTER – I

PAPER – II: ELECTRO-CARDIOGRAPHY & CPR

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: THE ECG MACHINE

a. The parts of the ECG machine
b. Accessories
c. Safety Standards
d. Calculation

UNIT – II: ELECTROCARDIOGRAPHY

a. Types
b. Definition
c. Clinical presentation
d. Investigations

UNIT – III: IDENTIFYING ABNORMAL ECG RECORDING

a. Components of an ECG
b. A normal ECG
c. Abnormal T waves
d. Abnormal QRS segment

UNIT – IV: CARDIOPULMONARY RESUSCITATION

a. Indications for CPR
b. Basic concepts
c. CPR for and adult
d. CPR for a child , infant neonate

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SEMESTER – I

PAPER – III: CARDIOLOGY DEVICES & INTERVENTIONS

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: DEVICES USED IN PACING

1. Pacemaker and its types
2. Components of pace maker
3. Functions of the pace maker
4. Warnings & precautions

UNIT – II: PDA DEVICES

5. Indications and types of devices
6. PDA occlusion system
7. Introduction
8. Potential complication

UNIT – III: ASD DEVICES

9. Device description
10. Indications & usages
11. Contraindications
12. Warnings

UNIT – IV: DEVICE PROTOCOL

13. Selection of patients
14. Pre &post procedure protocol
15. Monitoring the patients
16. Counseling of patient on discharge

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SEMESTER – I

PAPER – IV: COMPUTERS & SOFT SKLLS

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I:COMPUTER

1. Introduction
2. Basic concepts
3.Use of computers in Medical equipment in cardiology

UNIT – II: USE OF MICROSOFT OFFICE

4. MS- Word
5. MS- Excel
6. MS- Power Point
7. MS- Access

UNIT- III: IMPORTANCE OF COMMUNICATION

8. Process
9. Types
10. Basic communication
11. Barriers to communication

UNIT – IV: SOFT SKILLS

12. Importance of soft skills
13. Conversational English
14. Letter drafting
15. Extempore speaking

PRACTICALS

PAPER – I COMPUTERS & SOFT SKILLS

Instruction : 8 h/w **UE: Max. Marks: 100**

Soft Skills:

11. Presentation with the use of visual aids such as power point
12. Conversation
13. Extempore speech
14. Case studies and situational analysis
15. Survey and Reporting

Computer

11. Computer basis
12. MS – Office
13. MS - Word
14. MS – Excel
15. MS – Power Point

PAPER -II BASIC & DIAGNOSTIC MEDICAL SCIENCES

Instruction : 8 h/w **UE: Max. Marks: 100**

1. Familiarization with Basic Medical Sciences including Anatomy, Physiology, Biochemistry, Pathology and

2. Familiarization with position of electrodes and leads and taking ECG's for an adult, child and neonate.

3. Presentation of a patient with ECG and findings

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SCHEME OF INSTRUCTION AND EXAMINATIONS W.E.F 2011-2012

SEMESTER – II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Cardiovascular physiology/ Pathology	3	-	3	80	20
2	II	Congenital Heart Diseases and Physiology	3	-	3	80	20
3	III	Coronary Instrumentation	3	-	3	80	20
4	IV	Cardiac Catheterization	3	-	3	80	20
PRACTICALS							
5	I	Dept Work Cardiac Procedures		8	3	100	--
6	II	Dept Work in Cath Lab Procedures & Radiography		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN CATH LAB TECHNOLOGY

SEMESTER - II

PAPER – I : CARDIOVASCULAR PHYSIOLOGY/ PATHOLOGY

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: PATHOLOGICAL FEATURES OF CONGENITAL HEART DISEASES

1. Obstruction
2. Communication
3. Anomalous connections
4. Recognition of CHD in adults .

UNIT – II: CARDIAC LESIONS & MYOCARDIAL DEFECTS

5. Definitions
6. Morphology
7. Clinical Manifestation
8. Investigation

UNIT – III: VASCULAR LESIONS (Deep vain thrombosis ,Artheriosclerosis , Arteriosclerosis)

9. Definitions
10. Morphology
11. Clinical Manifestation
12. Investigation

UNIT – IV: VALVULAR STENOSIS

13. Definitions
14. Morphology
15. Clinical Manifestation
16. Investigation

PAPER – II: **CONGENITAL HEART DISEASES AND PHYSIOLOGY**

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: CONGENITAL HEART DISEASES

1. History of the patient
2. Cardiovascular examination
3. Cardiac Examination

UNIT – II: ACYANOTIC HEART DISEASE

4. Types
5. Etiology
6. Manifestation

UNIT – III: CYANOTIC HEART DISEASE

7. Types
8. Etiology
9. Manifestation

UNIT – IV: CARDIAC PHYSIOLOGY

10. Cardiac cycle
11. Cardiac output
12. Haemodynamics
13. Pulmonary vascular resistance

PAPER – III: CORONARY INSTRUMENTATION

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: CORONARY ANGIOGRAM – EQUIPMENT USED

1. Definitions &Indication
2. Catheters used and equipment
3. Use of pressure ejector
4. Monitoring

UNIT – II: PRECAUTIONS TRANSLUMINAL CORONARY ANGIOPLASTY

5. Definitions & Indications
6. Equipment and procedures
7. Monitoring and after care
8. Complications

UNIT – III: PERCUTANEOUS BALOONING

9. Indications
10. Interventions carried out
11. Equipment used
12. Monitoring and after care

UNIT – IV: ASD/VSD DEVICE CLOSURE

13. Indications
14. Interventions carried out
15. Equipment required
16. Monitoring

PAPER – IV: CARDIAC CATHETERIZATION

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I:CARDIAC CATHETIRIZATION

1. Definitions
2. Indications
3. Types of catheters used
4. Guide lines

UNIT – II: PRE&POST PROCEDURE CARE

5. Investigations
6. Pre cath evaluation
7. Monitoring during procedure
8. Post cath protocol
9. Precautions to be observed

UNIT- III: RADIOLOGY

10. Monitors in control
11. Operation of control system
12. Radiography : Simple plane , Biplane , DSA
13. Film processing & CD recording
14. Protective equipment , led aprons ,Badges

UNIT – IV: EMERGENCY CARE

15. Cardiac monitoring
16. Intubation , Bagging
17. Warmer
18. Emergency drugs

PRACTICALS

PAPER –I DEPARTMENT WORK: CARDIAC PROCEDURES

Instruction : 8 hrs/ week **UE :Max. Marks: 100**

1. Operation of control systems
2. Angulations in Coronary Angiography
3. Operation of Pulse Oxymeter
4. Operation of Tagusco
5. Assessment of haemodynanmic status
6. Recording and interpreting Blood Pressure
7. Catheters & Devices

PAPER -II Department work: In Cath Lab Procedures & Radiography

Instruction: 8 hrs/ week **UE :Max. Marks: 100**

1. Taking clinical history , Assessment & clinical examination
2. Operation of C-arm
3. Assisting for Temporary Pacing
4. Assisting for Permanent Pacing
5. Stress ECG recording
6. Holter recording
7. Maintenance of Cath Lab
8. Indents & Inventory
9. C.P.R

P.G. DIPLOMA IN ECHO CARDIOGRAPHY CUM SONOGRAPHY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - I

S.No	**Paper**	**Subject**	**Scheme of instruction hrs/ week**		**Scheme of examination**		
			L/T	**D/P**	**Duration in hours**	**Maximum Marks**	
						Univ Exam	**Sessional**
THEORY							
1	I	Applied Anatomy & Physiology	3	-	3	80	20
2	II	Pathophysiology related to the CV system	3	-	3	80	20
3	III	Pharmacology in general	3	-	3	80	20
4	IV	Echocardiography-1	3	-	3	80	20
PRACTICALS							
5	I	CV pathology & Clinical pathology		8	3	100	--
6	II	Basic and Diagnostic Medical Sciences		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN ECHO CARDIOGRAPHY CUM SONOGRAPHY

SEMESTER – I

PAPER – I : APPLIED ANATOMY & PHYSIOLOGY

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: ANATOMY OF HEART

1. Embryology of the heart
2. Parts of the heart structure
3. Conduction system of the heart
4. Factors effecting proper heart function

UNIT – II: FUNCTIONS OF THE HEART

5. Foetal Circulation
6. Pulmonary circulation
7. Systemic circulation
8. Coronary circulation

UNIT – III: THE ARTERIAL SYSTEM

9. The ARCH OF THE AORTA & BRANCHES
10. The thoracic aorta
11. The abdominal aorta
12. The arterioles

UNIT – IV: THE VENOUS SYSTEM

13. The Superior vena cava
14. The Inferior vena cava
15. The venous of the Thorax & Abdomen
16. Veins & Capillaries

PAPER – II**: PATHOPHYSIOLOGY RELATED TO CARDIO VASCULAR SYSTEM**

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: MYCOCARDIAL IN FRACTION

a. Definition
b. Etiology
c. Morphology
d. Clinical manifestation
e. Investigation

UNIT – II: **CORONARY THROMBOSIS**

f. Definition
g. Etiology
h. Morphology
i. Clinical manifestation
j. Investigation

UNIT – III: ENDOCARDITIS

k. Definition
l. Etiology
m. Morphology
n. Clinical manifestation
o. Investigation

UNIT – IV: ARTHERIOSCLEROSIS

p. Definition
q. Etiology
r. Morphology
s. Clinical manifestation
t. Investigation

DEEP VEIN THROMBOSIS

u. Definition
v. Etiology
w. Morphology
x. Clinical manifestation
y. Investigation

PAPER – III: PHARMACOLOGY IN GENERAL

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: INTRODUCTION TO PHRAMACOLOGY

1. Definitions 1. Pharmacology 2. Phramacognosy
2. Nature and source of drugs
3. Routes of drug administration
4. Fate of drugs – Metabolism , Absorption & excretion

UNIT – II: EMERGEBCY DRUGS USED IN ECHO ROOM

(CARDIAC GLYCOSIDES AND CARDIAC INOTROPIC AGENTS)

5. Indications
6. Action
7. Site of action
8. Dose

UNIT – III: ANTIHISTAMINES & SEDATIVES

9. Indications
10. Action
11. Site of action
12. Dose

UNIT – IV: CONTRAST USED IN DIAGNOSTICS

13. Types
14. Preparation
15. Test Dose
16. Documentation

PAPER – IV: ECHO CARDIOGRAPHY-1

Instruction hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: ECHO CARDIOGRAPHY

1. Introduction & Types of Echocardiography
2. Contrast echo , stress, Echo
3. Routine Echo
4. Tran thoracic Echo (TTE) – Trans Esophageal echo (TEE)

UNIT – II: ECHO WINDOW & VIEWS

5. Parasternal lung axis and short axis
6. Apical 4and 5 chambers
7. Sub costal
8. Supra sternal

UNIT- III: INSTRUMENTATION AND PHYSICS OF ULTRA SOUND

9. Transducer Functioning
10. Image formation
11. Factors affecting imaging
12. Measures to improve imaging

UNIT – IV: IMPORTANCE OF ELECTROCARDIOGRAPHY

13. Modern Developments In Echocardiography & Trans Oesophageal Echocardiography

    a. Types – Two dimensional , Three dimensional
    b. Uses
    c. Disadvantages
    d. Complications

PRACTICALS

PAPER– I : CV PATHOLOGY & CLINICAL PATHOLOGY

Instruction hrs: 8 hrs/ week **UE Max Marks: 100**

1. Giving I.V. contrast
2. Recognize Arrhythmias, Ischemia, Congestive Cardiac Failure
3. Checking Vital Capacity
4. Measuring Cardiac output
5. Giving medication
6. Awareness of drug reaction/ contrast reactions

PAPER- II : BASIC & DIAGNOSTIC MEDICAL SCIENCES

Instruction hrs: 8 hrs/ week **UE Max Marks: 100**

1. Familiarization with basic medical sciences including anatomy & physiology
2. Emergency care , CPR & Defirbrilization
3. Sterilization of equipment used in cathlab
4. up keep of equipment
5. Maintenance of ECG machine, catheterization
6. Recording and interpreting of Blood Pressure

P.G. DIPLOMA IN ECHOCARDIOGRAPHY AND SONOGRAPHY

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER - II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	Introduction to Sonogram	3	-	3	80	20
2	II	Doppler Physics and Fluid Dynamics	3	-	3	80	20
3	III	Sonography of the Body systems	3	-	3	80	20
4	IV	Echocardiography-2	3	-	3	80	20
PRACTICALS							
5	I	Sonography		8	3	100	--
6	II	Echocardiography / Doppler		8	3	100	--
TOTAL			12	16		520	80

Note:

L = Lecture T = Tutorial D = Demonstration P = Practical

P.G. DIPLOMA IN ECHO CARDIOGRAPHY AND SONOGRAPHY

SEMESTER – II

PAPER – I: INTRODUCTION TO SONOGRAM

Instruction Hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: INTRODUCTION TO SONOGRAM

1. Concepts and Definitions used
2. Compression waves
3. Attenuation and Scattering
4. Comparison of ultrasound and audible sound

UNIT – II: ULTRA SOUND TRANSDUCERS

5. Puzo - electric effect
6. General concepts of Transducer Construction
7. Characteristics of Ultrasound beam; Near [Fresnel] & Far [Fraunhofer], Zones, side lobes
8. Beem steering , Multiple transmit focusing

UNIT –III: PROPOGATION OF ULTRA SOUND THROUGH TISSUES

9. Speed of sound in different body tissues
10. Frequency range used for diagnostic imaging in children and adults with CHD
11. Distinction between secular reflection and back scatter
12. Principles of attenuation and scattering

UNIT – IV: IMAGING PHYSICS

13. Factors affecting choice of imaging physics
14. B mode and M mode methods
15. Concept of parallel processing and its influence on frame rate and image quality
16. Limiting factors for detecting small targets

PAPER – II: DOPPLER PHYSICS & FLUID DYNAMICS

Instruction Hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: DOPPLER INSTRUMENTATION

1. Duplex Doppler using imaging transducers
2. The stand alone Doppler probe
3. Features of the special display: Positive and negative velocities; scale and baseline settings
4. Effect of high and low-power filter controls and intensity threshold [reject] settings

UNIT – II: BASIC FLUID DYNAMICS

5. Fluid flow; significance of peak and mean velocities
6. Determination of volumetric flow
8. Laminar and turbulent flow: Reynolds equation [qualitative]
9. Bernoulli equation

UNIT – III : BASIC PRINCIPES OF DOPPLER

10. Interaction of ultrasound waves with moving blood compression & rare fraction [the Doppler effect]
11. The Doppler equation; factors influencing magnitude of Doppler shift.
12. High pulse repetition frequency [extended range] P.W. Doppler
13. Aliasing in colour Doppler – Packet size, colour mode and sector size and their effect on frame rate and aliasing

UNIT – IV: COLOUR FLOW INSTRUMENTATION

14. The color display: BART convention
15. Color maps to show velocity scales
16. Image domination and additive color modes
17. Basic principles of Tissue Doppler Imaging

PAPER – III: SONOGRAPHY OF THE BODY SYSTEMS

Instruction Hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: IDENTIFICATION OF ABNORMALITIES

1. Brain
2. Lung
3. Kidney
4. Arteries & veins

UNIT – II:ABNORMALITIES OF UPPER ABDOMEN

5. Liver
6. Gall stones
7. Portal Hypertension
8. Splenic masses

UNIT – III: ABNORMALITIES OF THE MIDDLE & LOWER ABDOMEN

9. Aneurysm of Aorta
10. Lymphnodes , masses & Abscess
11. Ascites
12. Intestinal tumors

UNIT – IV: IDENTIFYING OTHER PROBLEMS

13. Shoulder & knee problems
14. Neck, masses ,
15. Carcinoma of the breast, Prostate , Uterus
16. Pleural effusion & chest masses

PAPER – IV: ECHO CARDIOGRAPHY-2

Instruction Hrs: 3 hrs/ week **U E Max Marks 80**
I A Max Marks 20

UNIT – I: ECHO CARDIOGRAPHY

1. Definition
2. Indications
3. Procedure
4. Interpretation of common disorders

UNIT – II: TWO DIMENSIONAL ECHO CARDIOGRAPHY

5. Definition
6. Indications
7. Procedure
8. Interpretation

UNIT – III: MODERN DEVELOPMENTS IN ECHO CARDIOGRAPHY

9. Three Dimensional / 4 dimensional
10. Definition
11. Indications
12. Procedure
13. Interpretation

Unit – IV: INTERPRETING RESULTS & RECORDS

14. Reporting the result
15. Maintaining records
16. Cutting CD’s
17. Filing the results

PRACTICALS

PAPER - I. SONOGRAPHY

Instruction hrs: 8 hrs/ week **UE Max Marks: 100**

1. Knowledge of equipments used in imaging
2. Techniques used in ultrasound
3. Understanding the basic
4. Able to identify abnormal findings
5. Important Measurements and calculations

PAPER - II. ECHO CARDIOGRAPHY/ DOPPLER

Instruction hrs: 8 hrs/ week **UE Max Marks: 100**

1. Same
2. Understanding the basics techniques used
3. Able to spot abnormal findings
4. Measurements and calculations

FOR ALL THE PG DIPLOMA COURSES

OF ONE YEAR DURATION FOLLOWED BY 6 MONTHS INTERNSHIP

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER – I / II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	AAAAAAAAAAA	3	-	3	80	20
2	II	BBBBBBBBBBB	3	-	3	80	20
3	III	CCCCCCCCCCCC	3	-	3	80	20
4	IV	DDDDDDDDDDD	3	-	3	80	20
PRACTICALS							
5	I	ABABABABABAB		8	3	100	-
6	II	CDCDCDCDCDCD		8	3	100	-
TOTAL			12	16		520	80

L = Lecture T = Tutorial D = Demonstration P = Practical

ONE-YEAR COURSES COMPRISING 2 SEMESTERS + 6 months compulsory Internship:

1. P.G. Diploma in Operation Theatre Technology
2. P.G. Diploma in Cardiac Anesthesia Technology
3. P.G. Diploma in Medical Research Assistant
4. P.G. Diploma in Cath Lab Technology
5. P.G. Diploma in Cardiac Medical Lab Technology
6. P.G. Diploma in Perfusion Technology
7. P.G. Diploma in Cardiac Pulmonary Physiotherapy
8. P.G. Diploma in Echo Cardiography & Sonography

FOR ALL THE PG DIPLOMA COURSES

OF ONE YEAR DURATION FOLLOWED BY 6 MONTHS INTERNSHIP

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012

SEMESTER – I / II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	AAAAAAAAAAA	3	-	3	80	20
2	II	BBBBBBBBBBB	3	-	3	80	20
3	III	CCCCCCCCCCCCC	3	-	3	80	20
4	IV	DDDDDDDDDDD	3	-	3	80	20
PRACTICALS							
5	I	ABABABABABAB		8	3	100	-
6	II	CDCDCDCDCDCD		8	3	100	-
TOTAL			12	16		520	80

L = Lecture T = Tutorial D = Demonstration P = Practical

ONE-YEAR COURSES COMPRISING 2 SEMESTERS + 6 months compulsory Internship:

9. P.G. Diploma in Operation Theatre Technology
10. P.G. Diploma in Cardiac Anesthesia Technology
11. P.G. Diploma in Medical Research Assistant
12. P.G. Diploma in Cath Lab Technology
13. P.G. Diploma in Cardiac Medical Lab Technology
14. P.G. Diploma in Perfusion Technology
15. P.G. Diploma in Cardiac Pulmonary Physiotherapy

16. P.G. Diploma in Echo Cardiography & Sonography