

# **CURRICULUM**

## **MD**

### **(Cardiology)**

PEOPLES UNIVERSITY OF MEDICAL  
&  
HEALTH SCIENCES FOR WOMEN  
SHAHEED BANAZIR ABAD, NAWABSHAH



**DEPARTMENT OF CARDIOLOGY  
PEOPLES UNIVERSITY OF MEDICAL & HEALTH SCIENCES FOR  
WOMEN SHAHEED BANAZIR ABAD, NAWABSHAH.**

**-:2014:-**

*Revised 2019*  
*[Signature]*

## **INTRODUCTION**

Department of Cardiology Peoples University Of Medical & health Sciences for Women Shaheed Banazir Abad Nawabshah works under the faculty of medicine and allied sciences. The department caters for the cardiac services to the patients of six/seven districts including Shaheed Banazir Abad, Sanghar, Khairpur, Nausheroferoz, Dadu, Sukkhar & Matiari. Most of the district hospitals do not have the trained cardiologist to meet the demand of patients suffering from various cardiovascular ailments, though most of these hospitals may have facilities of acute cardiac care units, hence it would be timely to train physicians with general medical background in the specialty of clinical cardiology.

Apart from undergraduate teaching, currently department of cardiology is also involved in Post Graduate teaching & training. It is running a Diploma in Cardiology and MD cardiology training program. Whereas, the aim of the postgraduate course leading of the master's degree of MD is to introduce the medical graduate to more advance areas of Clinical Medicine and Medical Research. The course aims to illustrate of the students Principles of Medical Research in the theoretical and practical manners through taught modules and the competition of a research project. Finally we aim to foster an interest in the conduct of research throughout a medical career and the ability to critically evaluate research work in general. The department of medicine also provides training to post graduate courses of FCPS (Medicine) offered by the College of Physician Surgeons Pakistan (CPSP).

The clinical services have a distinguished history of providing care to acute & seriously ill cardiac patient populations as well as tertiary care. The goals of the department's educational program are to attract the most outstanding trainees, enforce rigorous standard of achievement, develop a learning environment and individualized program of study that help trainees reach their full potential, and to create an exemplary mixture of professionalism, service and integrity.

# **FACULTY MEMBERS**

**Dr. Qurban Ali Rahu**  
FCPS, FSCAI.

Professor & Chairman  
Department of Cardiology,  
PUMHSW, Nawabshah, SBA.

**Dr. Imran Illahi Soomro**  
FCPS Cardiology.

Assistant Professor  
Department of Cardiology  
PUMHSW, Nawabshah, SBA.

**Dr. Jagdesh Kumar**  
FCPS Cardiology

Assistant Professor  
Department of Cardiology  
PUMHSW, Nawabshah, SBA.

**Dr. Muhammad Khan Soomro**  
M.D Cardiology

Senior Registrar  
Department of Cardiology  
PUMHSW, Nawabshah, SBA.

## **(I) OBJECTIVES**

At the end of MD cardiology course in the student should be able to:

1. Recognize the key importance of Cardiac problems in the context of the health priority of the country;
2. Practice the specialty of Cardiology in keeping with the principles of professional ethics;
3. Identify social, economical, environmental, biological and emotional determinants of adult Cardiac medicine and know the therapeutic, rehabilitative and promotion measure to provide holistic care to all patients.
4. Take the detailed history, perform full physical examination and make a clinical diagnosis.
5. Encourage the development of Cardiac innovation through basic and / or clinical research like other subspecialties, to improve candidate's skill in Echocardiography, cardiac intervention and electrophysiology Nuclear cardiology.
6. Diagnose cardiac illness in adults based on the analysis of history, physical examination and investigations.
7. Plan & deliver comprehensive treatment of illness in adults using principles of rational drug therapy.
8. Plan & advise measures for the prevention of cardiac diseases.
9. Plan rehabilitation of adults suffering from chronic illness, and those with special needs.
10. Manage Cardiac emergencies efficiently.
11. Demonstrate skills in documentation of case details, and of morbidity and mortality data relevant to the assigned situation.
12. Demonstrate empathy and humane approach towards patients and their families and respect their sensibilities.
13. Demonstrate communication skill of a high order in explaining management and prognosis, providing counseling and giving health education messages to patients, families, & communities.
14. Develop skills as a self-directed learner, recognize continuing educational needs, use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence- based medicine.
15. Demonstrate competence in basic concepts of research methodology and epidemiology.
16. Facilitate learning of medical/ nursing students, practicing physicians, para-medical health workers and other providers as teacher-training.
17. Play the assigned role in the implementation of national health programs, effectively and responsibly.
18. Organize and supervise the desired managerial and leadership skills.
19. Function as a productive member of a team engaged in health care, research and education.

## **(II) OUTCOME**

To develop competence in the inpatient and outpatient management of Cardiac problems referred by family physicians and other doctors and in selecting patients for referral to care facilities and treatment modalities requiring high technology and / or the expertise of another specialty (When needed).

## **(III) LENGTH OF COURSE**

The course will be of five years duration, starting from January every year.

## **(IV) NUMBER OF CANDIDATES**

Two candidates will be admitted every year per supervisor or/as per university policy in general.

## **(V) ELIGIBILITY**

MBBS or equivalent qualification recognized by PMDC.  
One year house job in a recognized institute of which 6 month will be in Medicine and /or Cardiology.

## **(VI) CRITERIA FOR SELECTION**

Candidate will be admitted in MD Cardiology course after passing Part-I conducted by Post Graduate Centre PUMHSW, Nawabshah, SBA.

## **(VII) COURSE AND TRAINING**

### **A) CLINICAL TRAINING:**

1. The period of training shall be for Five years.  
one year in internal medicine, department of Medicine PUMHSW Nawabshah.  
Four years in Cardiology department, Peoples Medical College & Hospital Nawabshah & rotation at other cardiac center when necessary.
2. Candidate shall attend 75% of all clinical and or class room activity prescribed for him, else he will not be sent for final examination.
3. Enrollment with university after admission within 03 months
4. Registration as a research scholar. The postgraduate student is required to choose a topic of research and write a synopsis on the topic within 06 months of admission, to be evaluated by the scrutiny committee of cardiology and research board for final registration.

## **B) Research (Thesis) and Publication:**

The candidate has to submit approved thesis six months before final examination (MD Part II Examination).

- I. Candidate shall present thesis for MD cardiology. Every candidate shall get his subject of thesis as well as supervisor approved by the advance board of studies six months before the date of final examination and shall forward the thesis to the registrar of university at least 04 months before the final date of the commencement of examination accompanied by the prescribed fees and certificate from the supervisor that the work has been undertaken under his supervision.
- II. The thesis shall embody the result of candidate's own research or experience and be accompanied by precise reference to publication quoted. In the thesis the candidate shall indicate on what respect his contribution appears to him to advance the knowledge or practice of medicine. The thesis must attain to high standard and be satisfactory as regards, literacy, presentation, as well as in other respects. The thesis must be typed on a paper 11 by 8.5" with a margin of 1 1/2" each side. Only one side paper is to be typed. It shall be bound in cloth with the name and title on cover and should end with a summary embodying conclusion arrived at by the author.
- III. The thesis if accepted shall be the property Peoples University of Medical & Health Sciences for Women Shaheed Banazir Abad Nawabshah with all copyright. It shall not published by author without permission from the university and the Professor of cardiology. The thesis will be kept in library.
- IV. The thesis shall be examined by three examiners, one internal (not the supervisor) two external recommended by the board of studies, who shall report whether the thesis is accepted or rejected. Thesis must be submitted 6 months before final MD Part II examination.

### **SCHEDULED 5 YEAR TRAINING ROTATIONS**

Candidate will be rotated in various disciplines as under:-

#### **1<sup>st</sup> Year:**

- I) Cardiology ward
- II) OPD
- III) Cardiac Emergency

#### **2<sup>nd</sup> Year:**

- I) MEDICINE: General medicine and other rotations, preferably in chest, Neurology and Nephrology.

\*Note. There will be a MTE (Mid Term Examination) after completion of two years of training especially mandatory Medicine rotation.

#### **3<sup>rd</sup> Year:**

I)	CCU	(4 months).
II)	Echocardiography	(4 months).
III)	ETT & Nuclear cardiology	(2 months).
IV)	Cardiac Surgery & Surgical ICU	(2 months).

#### **4<sup>th</sup> Year:**

I)	Pediatric Cardiology	(6 months).
II)	Cardiac cath: lab	(6 months).

#### **5<sup>th</sup> Year:**

I)	Cardiology ward (4 months), OPD (2 months), Cardiac Emergency (2 months) & CCU (2 months).
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1. **NOTE:** It is responsibility of students to keep touch with supervisor director PG for their rotations
2. Rotation order is changeable according to supervisor advice.
3. It is mandatory for the candidate to provide certificates of all rotations during filling of MD Part-II Examination form.
4. There will be a Mid Term Examination at the end second year of training especially mandatory Medicine rotation.

### **COMPONENTS OF TRAINING**

#### **1. MANDATORY WORKSHOPS:**

The candidate has to attend the following mandatory Workshops.

01. Computer and internet.
02. Research , methodology and dissertation writing
03. Communication Skills.
04. BLS & ACLS

#### **2. LOG BOOK:**

The candidates are required to maintain a prescribed log book with entries of academic session, procedures carried out and seminars/ symposia attended during the five years tenure duly signed by Supervisor/ Incharge. The log book is to be submitted to the examination Department along with MD Part-II examination form.

### **RESPONSIBILITIES OF TRAINEES**

Having provided the conducive atmosphere by the university trainees are required to engage themselves in acquiring knowledge and enhance their capabilities in dealing with the patients in the stipulated period.

- The trainee should acquire a complete knowledge of the course he is entering in, in order to prepare himself/ herself for the future.
- He/ She should select / her supervisor at his / her own will.
- He/ She should undergo his / her training with due sense of responsibility and dedication.
- He/ She should select a reasonable and applicable topic for thesis in consultation with his supervisor and plan for the research on the approved topic within the time allocated.
- He/ She is required to submit his/ her thesis duly signed by the supervisor six months before the final examination.
- He/ She is required to fulfill all the requirements for appearing in the examination.
- He/ She is required to Enroll himself/herself with university within first two weeks after admission.
- He/ She is required to Register himself/herself as research scholar.
- The post graduate student is required to choose a topic of research and write a synopsis on the topic within six months of admission, to be evaluated by the Scrutiny Committee and then by Advanced Studies & Research Board for final registration.

## **GENERAL CARDIOLOGY TRAINING**

### **INPATIENT CARE:**

Trainees should be directly involved in the routine care of patients admitted for assessment and treatment.

### **CARDIOLOGY CONSULTATION:**

Trainee should provide a cardiology consultation service for the whole hospital under the supervision of the supervisors.

### **EMERGENCY CARDIOLOGY AND CARDIAC CARE:**



Trainees should be directly involved in assessment, investigation and management of all types of cardiac emergencies referred both from a general hospital or a specialist centre (depending on the phase of the program)

The trainee should take part in an on-call emergency Rota for such patients. The trainee should be responsible for liaison with cardiac surgeons when appropriate. The trainee will also be expected to learn important techniques required by these patients such as Swan-Ganz catheterization, temporary pacing, cardio version and pericardial aspiration, as well as basic and advanced life support techniques.

### **CARDIOLOGY OUTPATIENTS:**

The trainee will have a regular commitment to cardiology out-patients (one or two clinics per week). The trainee should see new patients and also follow-up cases in each clinic with consultant advice as necessary. The trainee should participate in general cardio logical outpatient clinics throughout their training.

### **INVESTIGATION:**

All trainees need to be expert in a wide range of basic investigations including Interpretation of the electrocardiogram (ECG) and chest X-ray Supervision and analysis of stress testing. Ambulatory monitoring for both rhythm and ST segment analysis.

### **ECHOCARDIOGRAPHY:**

Trainee must have a basic knowledge of the physical principles behind image formation and the Doppler technique. It is important that the trainee has knowledge of cardiac anatomy, physiology, hemodynamic and their abnormalities. He understands and is familiar with the echocardiography instrumentation. Trainees should work and train under the direction of an experienced echo-cardiographer (doctor). At least 100 investigations should be performed. 20 of which should be cases recorded on video and kept by the trainee so that they can be reviewed by their trainer to assess proficiency

### **EXERCISE ECG:**

Trainee will have to supervise at least 50 cases. He should have theoretical knowledge of indications and contraindication for ETT. He should be able to report the test.

### **NUCLEAR CARDIOLOGY:**

Facilities available at Nuclear Institute of Medical & Radiotherapy NORIN Nawabshah where SPECT gamma camera is available.

A sound knowledge is required of:

The radionuclide and radiopharmaceuticals used in nuclear cardiology.

- Principles of operation of the gamma camera and other hardware commonly used and methods of computerized image acquisition and processing.
- The different types of protocols stress testing used in nuclear cardiology.
- Radiation protection & safety protocols.

Personal involvement in the acquisition, analysis and reporting of at least 50 myocardial perfusion image and 50 blood pool images (either rest or stress and with analysis of global and regional left ventricular function in both cases). The recommended Practical training in handling radioactive materials and other aspects of radiation protection is essential. Involvement in the training of trainees acquiring the basic level of knowledge in the subject is also desirable.

### **INVASIVE AND INTERVENTIONAL CARDIOLOGY**

- Candidates must have basic knowledge of catheterization laboratory equipment, sterilization, patient preparation counseling protocols.
- Candidates must have knowledge of procedures carried out at catheterization laboratory, their indications, contraindications, complications and their management.
- Trainee is expected to perform coronary angiography & left & right heart catheterization under supervision.
- Trainee is expected to assist in interventional cardiology procedures, their pre-cath and post-cath care.
- Candidate is expected to assist in electrophysiology cases carried out at catheterization laboratory.

### **PEDIATRIC CARDIOLOGY:**

- Candidate is expected to have good clinical knowledge & skills in dealing with common pediatric cardiac problems, their timely referrals to advance pediatric cardiology centers/units.
- During training must be involved in dealing with pediatric cardiac emergencies, outpatients, pediatric echocardiography, and pediatric invasive cardiology procedures under supervision.

### **CARDIAC SURGERY:**

Trainee will be actively involved in cardiac surgical training and management of patients in cardiac surgical ICU.

### **TEACHING:**

All trainees will be actively involved in teaching undergraduate, nurses, and technicians as appropriate.

## **DIDACTIC TRAINING**

Over the five years of postgraduate training, different didactic in program includes.

- Weekly grand rounds.
- Practice guideline and research presentation.
- Core Curriculum Seminar.
- Morbidity and Mortality (M & M) meetings.
- Journal Club.
- Morning Report (Inpatient and Outpatient).

The five year didactic core curriculum addresses both inpatient and outpatient Cardiac Patients.

## **GENERAL SKILLS**

### **Introduction**

During training all postgraduate require skills that are irrespective of the specific training post and 'generic' to the doctor. There is an exciting opportunity to build upon skills already established as an undergraduate. To give PG's and trainer's guidance to recognize opportunities for learning, to reflect on clinical practice and to be become self-outlined for the following:

### **'Generic skills'.**

- History clinical care
  - History- taking, examination and note-keeping skills
  - Time management, risk management and decision making
  - Basic life support and advance life support.
- Maintaining good medical practice
  - Learning
  - Evidence, audit and guideline
- Communication skills
  - Within a consultation
  - Breaking bad news
  - With colleagues
  - Complaints
- Working with Colleagues ( team working)
- Maintaining trust.
  - Professional behavior
  - Ethics and legal issues
  - Patient partnership and health promotion
- Teaching & training
  - These objectives should not restrict learning, they do however, outline the minimum requirements for satisfactory completion of postgraduate clinical training.

## **PRINCIPLE AREAS OF COMPETENCE**

- a) Clinical expertise and judgment.
- b) Ability to established effective relationship with patients.
- c) Leadership and personal management skills.
- d) Organization, Planning and Service management skills.
- e) Education and mentoring abilities.
- f) Quality standard, effectiveness, research and development skills.

## **a) Clinical Expertise and Judgment**

### **I- Basic Clinical Skills:-**

- The ability to obtain a reliable history and elicit abnormal physical signs.
- The ability to interpret findings and the result of investigation
- The ability to perform the defined practical procedure needed for the management of medical emergencies & effective cases.

### **II- Clinical Reasoning:-**

- The ability to assess and diagnose complex medical problems, particularly those involving multiple systems and determine their relative priority.

### **III- Expert Management:-**

- The ability to investigate clinical problems in prioritized, systemic, well informed and cost effective way.
- The ability to recognize and manage all major medical emergencies and other acute presentations of illness effecting concurrently one or more organ systems.
- This should include the administration of the necessary immediate care and in an appropriate evidence-based way.
- Expertise in the ongoing care and management of chronic community aspects of disease.
- The ability to determine the indication for transfer to a specialist unit.
- The ability to manage patients in a holistic way, considering all psychosocial, economical as well as medical factors improving quality of life.
- The ability to plan and achieve, successful patient discharge from hospital, including knowledge of the various discharge options.
- The ability to determine when the emphasis of treatment should change from the curative to the patients whose prognosis is limited.

## **b) Establishing Effective Doctor - Patient Relationship.**

### **i) Communication Skills**

The ability to promote and cooperation, and to help patients cope with distressing or other emotions, and the following skills:-

- Active listening
- Understanding the need for and enabling the ventilations of feelings.
- Warmth, support and empathy.
- Respect, guidance, partnership.
- The ability to educate and motivate patients towards co-operating with advice and to demonstrate the following skills: elicitation of existing views/knowledge.
- Offering clear explanation and instructions checking understanding, evaluating.
- Problem using positive attribution and praise.

- The ability to deal with special situations e.g. breaking bad news to patients & relatives.
- Other sensitive issues, preparation for threatening procedures.
- Obtaining informed consent, conducting family conference, dealing with complaints etc.

## ii) **Ethical principles:**

- The observation of clear ethical principles such as dignity of patients their right to privacy and confidentiality. Their right to the best possible care. The right autonomy and informed consent. Their right to decline treatment or to take part in teaching or research decline treatment or to take part in teaching or research etc.
- Trainee should acquire good social relationship with community. Should respect community norms and values. Ability to take advantage from community in special situations in collaboration with senior authorities.

## c) **Leadership and personal management skills:**

### i) **Personal achievement:**

- The ability to exercise independent judgment and clinical self-confidence. The ability to be self-directed and to achieve objectives. The ability to have high internal standards and a desire to improve. The ability to maintain effective work performance under pressure when appropriate and to cope with ones own emotions.
- The ability to accept and act on constructive criticism.

### ii) **Interpersonal skills:**

- The ability to initiate, build and maintain good relationships, both one to one and in groups.
- The ability to lead by example.
- The ability to put oneself in the place of another and correctly interpret their concerns and feelings.
- The ability to calculate in advance the likely effect of ones words or actions on an individual or group in order to bring about a desired effect.
- The ability to time ones actions or interventions in order to maximize their effectiveness.

### iii) **Managing Others:**

- The ability to get others to work effectively by planning and delegating work.
- The ability to coach and supervise others and give clear feedback about performance, good or bad.

## **d) Organization, Planning and Service Management**

### **skills**

- The ability to conduct and administer a general medical service, including seeing patient referrals, dictating letters, summaries and reports etc.
- The ability to liaise and work effectively with professional colleague's particularly general practitioners and members of the multidisciplinary team.
- The ability to participate in committee work concerned with planning and organizing services.
- The ability to supervise and work with medical & allied staff.
- The ability to develop a strategic view & health service management system.

## **e) Education and mentoring Skills**

### **i) Being a Role Model:**

- The ability to set an example of good practice and be respected as a Physician.

### **ii) Educational Supervision:**

- The ability to motivate, demonstrate and explain particularly the reason for clinical decisions.
- The ability to build relationships with trainees.
- The ability to use appropriate teaching methods and styles.
- The ability to assess the performance of trainees.

## **f) Quality Standard, Effectiveness, Research and Development Skills.**

- The ability to plan and conduct clinical audit studies of aspects of the G(I) M service in order to improve service quality.
- The ability to present the results of audit or research to both small and large audience.
- The ability to evaluate research publications to assess their importance.
- The ability to reflect on clinical practice and plan future educational needs,
- To maintain an expert knowledge of the diagnosis and treatment of a broad range of common acute disorders through systematic continuing professional development.

## **(VIII) ROLE OF THE SUPERVISOR**

The supervisor has to play a pivotal role in training of the candidates by imparting theoretical and practical knowledge to them. The supervisor is a person with post-graduation recognized by the PUHMSW having a vast experience of teaching and administration.

- The prime role of supervisor is to impart knowledge to the trainee in order to train him to diagnose and manage the acute and chronic medical problems with responsibility.
- He is responsible to provide a conducive atmosphere for trainee learning.
- He should help out the trainee at any time of difficulty with open heart.
- He should make the trainee capable of interpreting the findings or laboratory investigations and act accordingly.
- The supervisor is required to maintain a liaison with Director PG and examination department for uninterrupted training of the candidate.
- He is required to inform the authorities regarding any misconduct or irregularity of the candidates in due time.
- He is required to ensure that the trainee has completed the training in stipulated time as per requirement of syllabus.
- He is required to submit a detailed report on the performance of candidates to Director Postgraduates every year without any bias and inclination.

## **(IX) COMPETENCE AT THE END OF TRAINING**

At the completion of training the post graduate will have demonstrated their competence in all the above listed abilities to the satisfaction of their supervising consultants and / or their educational supervisor. In particular they should be able to Demonstrate.

- The ability to diagnose, investigate and manage the patients independently and care for patients irrespective of the nature of the patients problems.
- The ability to select the patients who require care of other specialists.
- The breadth of clinical experience and competence in the management of the full spectrum to acute unselected medical emergencies.
- Their skills of diagnostic reasoning in the management of patients with complex problems, non-specific symptoms, atypical presentations and multi-system disorder.
- Their ability to demonstrate the knowledge, skills and attitudes contained in the syllabus.
- Their ability to perform the specified list of practical procedures.
- Their willingness to participate in the work of the multidisciplinary team.

### **Partial List of Suggested Reading:**

1. Braunwald's Heart Disease : A Text Book of Cardiovascular Medicine
2. The Heart : Hurst's Text book of Cardiology
3. Topol : Text Book of Cardiovascular Medicine
4. Current Diagnosis and Treatment in Cardiology
5. Current Guidelines : AHA/ESC etc.
6. Tajik Manual of Echocardiography.
7. Feigenbourn's Echocardiography.
8. Grossman's cardiac catheterization & angiography.
9. MARRIOTS Echocardiography.

### **List of Approved Journals:**

1. Journal of the American College of Cardiology (JACC)
2. American College of Cardiology Current Journal Review
3. Texas Heart Institute Journal
4. European Heart Journal (Journal of European Society of Cardiology)
5. Heart (BMJ) British Medical Journal
6. Journal of the College of Physician and Surgeons Pakistan
7. Pakistan Heart Journal
8. New England Journal of Medicine.
9. Circulation journal
10. Journal of Echocardiography

## **(X) THEORY AND VIVA VOCE EXAMINATION**

The examination will consist of theory and Practical examinations.

### **ELIGIBILITY FOR FINAL EXAMINATION:**

The candidate is eligible to appear in the final examination after fulfilling the following criteria:

- A. Completion of full tenure of course with at least 75% attendance
- B. Submission and approval of thesis
- C. Satisfactory report from the supervisor
- D. Completed Log book duly signed by supervisor.
- E. Passed Intermediate module examination.
- F. Certificates of all mandatory workshops.



## **PART-II EXAMINATION:**

### **a) Theory:**

Paper I:	100 MCQ's	(100 Marks).
Paper II:	10 Short Essay Questions.	(100 Marks).
Paper III:	04 long Essay Questions.	(100 Marks).

S.No	Topics	MCQ's	Short Essay	Long Essay
01	Coronary Artery Disease (CAD)	15	10 questions allowed for entire course as per examiner's choice	04 questions allowed for entire course as per examiner's choice
02	Heart Failure & Cardiomyopathies	12		
03	Rheumatic heart disease & valvular heart disease	06		
04	Endocarditis and Pericardial disease	05		
05	Hypertension and Pulmonary vascular disease	06		
06	Congenital heart disease	06		
07	Preventive cardiology, Risk factors for IHD & DM.	10		
08	Cardiovascular heart disease in special population: Pregnancy, elderly and women.	06		
09	Cardiovascular investigation.	10		
10	Cardiac arrhythmias, heart blockers, syncope & sudden cardiac death	06		
11	Cardiovascular Pharmacology	10		
12	Molecular & Genetics in heart disease	03		
13	Cardiovascular diseases in systemic disorders eg: connective tissue disorder, neurological & metabolic & Mephrological disorders.	05		

### **b) Practical (CLINICAL) EXAMINATION:**

It will be conducted after the candidate qualifies the theory of Part-II with at least 60% marks in each examination (in each paper).

The clinical examination will consist of the following:

- |   |                    |
|---|--------------------|
| a) One long case (Cardiology)                   | 100 marks.         |
| b) Four short cases (Cardiology), 25 marks/case | 100 marks (total). |
| c) TOACS  | 100 marks.         |

TOACS will include interpretations of X – rays, Echoes, Cath, ECG, CTScan, MRI, Clinical data and special reports.

There will be 04 examiners from amongst Professors & qualified Associate Professors of Cardiology. The supervisor can be the Coordinator but not examiner.

The candidate whose thesis has been accepted and has passed the theory of Part—II examination but fails viva voce may be readmitted to the viva voce, as per general rules.

### **c) SUBSEQUENT EXAMINATION:**

He shall pay the prescribed examination fee on each attempt. If the candidate fails three consecutive attempt he shall have to repeat theory examination of part—II.

*THE END*