

CURRICULUM
FOR
M.D. (Cardiology)
2017

**Fatima Jinnah Medical University,
Lahore.**



FATIMA JINNAH
MEDICAL UNIVERSITY, LAHORE
Government of The Punjab

CONTENTS

SECTION NO.	CONTENTS	PAGE NO.
2.	Duration and Scheme of Course of M.D.(Cardiology)	4
3.	Aims and Objectives of M.D. (Cardiology) Course.	5
4.	Admission Criteria and Procedure.	6
5.	Curriculum Content for Phase-I & Phase-II of the Course.	8
6.	Research Thesis.	11
7.	Log Book.	12
8.	Examinations and Results.	13

Section – 2

Program Mission, Objective and Outcome

AIMS:

The aims and objectives of MD Cardiology course are:

1. That the student accepts Cardiology in its full sense as a lifelong activity and that he/she is prepared to invest time and effort to acquire, maintain and further improve his/her own knowledge and skills.
2. A critical appreciation of techniques, procedures carried out in Cardiology; an understanding of scientific methods, reliability and validity of observations and the testing of hypothesis.
3. The ability and willingness to adopt a problem solving approach to manage clinical situations included in the definition of Cardiology.
4. The ability to plan and interpret a management program with due regard to the patients' comfort and economic factors.
5. His / her awareness of the role of specialists of Cardiology in health/ rehabilitation / welfare teams and his/her willingness to work cooperatively within such teams.
6. The awareness that he/she has to create his/her own professional impact as a capable Specialist/ Teacher / Scholar of Cardiology in the world.
7. To pursue and develop the basic scientific pursuits and guideline for scientific discoveries to strengthen knowledge further about human body requirements.

OBJECTIVES:

The main objective of MD Cardiology course is to produce knowledgeable and skilled cardiologists, who at the end of their training are able to:

1. Independently manage routine and complex acute and chronic adult cardiac problems
2. Diagnose routine pediatric cardiac problems and start initial management
3. Manage ambulatory cardiac patients independently
4. Teach students, interns and residents
5. Manage pre- and post-operative cardiac and hemodynamic complications in cardiac and non-cardiac surgical patients
6. Independently perform and interpret non-invasive cardiac diagnostic procedures, e.g. Exercise Tolerance Test (ETT), Echocardiography, Doppler studies, ambulatory blood pressure monitoring (ABPM), ambulatory ECG monitoring (Holter monitor) and nuclear cardiac imaging.
7. Observe, assist and learn to interpret CT Coronary Angiography.
8. Rotation to Paeds Cardiology for observation, learning, interpretation of various imaging modalities and basic management of paediatric cardiology diseases.
9. Independently perform central line insertion with bedside hemodynamic monitoring, temporary pacemaker insertion, and pericardiocentesis.
10. Independently perform right and left cardiac catheterization
11. Observe and assist in coronary, valvular interventions, electrophysiological studies/ablations and device implantation
12. Understand the basic principles of research; design and conduct a study to the final stages of manuscript writing and publication
13. Devote extended (elective) time in area of interest, acquiring in-depth skills in nuclear cardiology, stress echo, trans-esophageal echo, cardiac electrophysiology and cardiac intervention at FJMU and other centers / institutes of Cardiology.

Section – 3

SCHEME OF THE PROGRAM:

Duration; Five (5) years

Admission process:

- Applications
- Entry test
- Admission

PHASE (Duration)	MAIN TASK	END OF PHASE ACTIVITY	CREDIT HOURS	CONTINUOUS IN ALL PHASES	Result of examination →
I-A (Month 1 – 6)	Induction in specialty Workshops Synopsis submission	Movement to Internal Medicine	33	Achievement of generic and specialty specific competencies, Rotational placements, Research and academic activities Continuous internal assessment	Thesis submission and evaluation → acceptance of Thesis and eligibility for final examination
I-B (Month 7 – 24)	Training in Internal Medicine, Synopsis approval	Intermediate examination	114		
II (Year 3 – 5)	Rotation and training in different sections of Cardiology	Final Examination	Ward=48hr CCU=48hr ETT=12hr GA fitness=12hr Morning calls=12hr Echo=18hr Cath lab=36hr C/surgery=21hr Nuclear=18hr EPS=12hr CT.Angio=6hr Paeds Cardiology=18hr		

Section – 4

ADMISSION CRITERIA AND PROCEDURE

The Registrar of FJMU will admit students in the above-mentioned course at the most twice a year through advertisement in print and electronic media.

4.1. Admission Criteria;

4.1.(a) General Requirements

- i) Basic Medical qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical and Dental Council (PMDC).
- ii) One year house job after graduation in any institute recognized by PMDC.
- iii) Valid certificate of permanent or provisional registration with PMDC.

4.1.(b) Special Requirements

- (i) An entry examination will be held according to following pattern.

Sr. #	Examination	Total marks
1	Written paper	300
2	Video-projected clinical examination	30
3	Interview	20

- (ii) All seats will be filled by open merit. However graduates of FJMU will be given 10% weightage in merit.
- (iii) The slots available for each program will be decided by the university.
- (iv) The candidate will have to submit his / her acceptance for offer of admission within 07 days after which it will automatically stand invalid.

- (v) After acceptance, the candidate will be responsible to provide all necessary documents to the Human Resource Department (HRD) and a registration no will be allotted within 15 days.
- (vi) After registration, the candidate will report to Head of Cardiology Department and submit joining report within 07 days to the Registrar FJMU.
- (vii) The Registrar will maintain a record of all candidates.

4.2. FEE STRUCTURE.

The University will charge the fee (non-refundable) for the following components. The exact amount of fee may be decided and adjusted from time to time by the University.

- a) Registration fee
- b) Four Mandatory workshops fee
- c) Yearly tuition fee
- d) Hostel fee and utility charges if applicable
- e) The candidate may be expelled from the program after a default of more than 30 days for the payment of any of the dues.

Section – 5

CURRICULUM CONTENT AND ORGANIZER FOR M.D.(CARDIOLOGY) COURSE

MD Cardiology course will comprise of two phases (I & II) and 1st phase will be subdivided into I-A and I-B

PHASE-IA OF THE COURSE.

- i. The candidate will spend the first six months as induction period in the department of Cardiology. During this period, the candidate shall learn orientation within the discipline of Cardiology and introduction to fundamental concepts of Cardiology including basic sciences (Anatomy, Physiology and Pathology) relevant to Cardiovascular diseases.
- ii. The candidate will attend four mandatory workshops as under:
 - a) **Research Methodology and Biostatistics**
 - b) **Synopsis Writing**
 - c) **Communication Skills**
 - d) **Introduction to Computer / Information Technology and Software programs**

- The workshops should be completed preferably within 06 months but no later than the date of submission of application to appear in the Intermediate Examination at the end of 2nd year.
- iii. The candidate will submit synopsis for approval within the first 06 months period according to the prescribed framework under the prevailing institutional regulatory requirements. An additional grace period of 07 days may be granted by the Vice Chancellor for this purpose. In case of non-submission of synopsis within this period, the candidate will not be allowed to continue in the training program. The stipend/scholarship if any will be stopped and the post shall fall vacant.

PHASE-IB OF THE COURSE.

The candidate will move to a Medical Unit for training in Internal Medicine for 18 months. During this period he will gain practical knowledge of general Medical problems with special emphasis on their relevance to Cardiology. He will maintain a continuous contact with his supervisor in Cardiology during this period as well.

It is the responsibility of the candidate through his / her supervisor to get his synopsis approved from IRB within 02 years from the date of admission in to training program i.e., before the end of 2nd phase of Training. An additional grace period of 30 days may be granted at the discretion of the VC. If the candidate still fails to get his synopsis approved he/she would stand ineligible to appear in the Intermediate Examination and will be excluded from the training in the chosen program. His stipend/scholarship if any will be stopped and the post shall fall vacant. ***Any difficulty faced by the candidate for completed submission of synopsis must be brought to the notice of the Registrar for remediation before completion of 18 months from the time of induction.*** The Registrar would issue 02 fortnightly reminders to the appropriate person / forum and in case of failure, shall submit its report to the Academic Council

Continuous Internal Assessments (CIS): After each rotation and at 3 monthly intervals during training, the candidate would apply to his supervisor for completion of supervisor's evaluation proforma **as given in Appendix G** and send a copy of this application to the registrar. The supervisor would submit this proforma to the Registrar's office within fifteen days who would recruit him for the next phase of rotation program/training while completing the codal formalities. In case of non-submission of proforma the candidate would prompt his supervisor to submit the evaluation proforma and also intimate the Registrar about this fact. In case of non-submission of supervisor's evaluation proforma, the Registrar would issue two fortnightly reminders and if the proforma is still not submitted, it will be brought to the next Academic Council.

All residents will be trained in the following 05 generic competencies **(See Appendix A and F)**

- i. Patient care

- ii. Medical knowledge and Research
- iii. Practice & System Based Learning
- iv. Communication skills
- v. Affective domain and Professionalism as per Hippocratic Oath.

INTERMEDIATE EXAMINATION

The Intermediate Examination at completion of 1st phase of training will be held twice a year.

Eligibility Criteria: To appear in Intermediate Examination, a candidate shall be required:

- i To have submitted certificate of completion of mandatory workshops.
- ii To have submitted certificate/certificates of completion of first two years of training from the supervisor/supervisors during rotation.
- iii To have submitted CIS assessment proforma (see **Appendix G**) from his own supervisor on 03 monthly basis and also from his supervisors during rotation, achieving a cumulative score of 75%.
- iv To have submitted certificate of approval of synopsis or undertaking/ affidavit that if synopsis not approved within 30 days of submission of application for the Intermediate Examination, the candidate will not be allowed to take the examinations and shall be removed from the training program.
- v To have submitted evidence of payment of examination fee.

The candidates of MD Cardiology programs will appear in the subject of Principles of General Medicine

The Intermediate Examination will consist of the following components

- | | |
|---------------------------------|-------------------|
| i. Written Examination | Total Marks = 300 |
| ii. Clinical & Oral Examination | Total Marks = 200 |

The written examination will consist of 100 single best answer type Multiple Choice Questions and 10 Short Essay Questions. Each correct answer in the Multiple Choice Question paper will carry 02 marks but an incorrect response will result in deduction of 0.5 mark. The Short Essay Questions Examination will be clinical scenario or practice based, and each question will carry 10 marks.

The Total Marks of the Written Examination will be 300 and to be divided as follows:

- | | |
|--------------------------------|-------------------|
| Multiple Choice Question paper | Total Marks = 200 |
| Short Essay Question paper | Total Marks = 100 |

The Multiple Choice Questions will be derived from different subjects as follows

- | | |
|--------------------------------|---------------|
| Principles of General Medicine | ≈70 Questions |
| Cardiology | ≈10 Questions |

Basic Sciences
(Physiology, Pharmacology, Pathology)

≈20 Questions

The candidates scoring 50 % marks in multiple choice question paper and 50 % marks in short essay question paper will pass the written examination and will then be eligible to appear in the clinical and oral examination.

The clinical & oral part of Intermediate Examination will evaluate patient care competencies in detail.

A panel of four examiners will be appointed by the Vice Chancellor and of these two will be from FJMU whilst two will be the external examiners. In case of difficulty in finding an internal examiner in a given subject, the Vice Chancellor would, in consultation with the concerned Deans will appoint any relevant person inside / outside the University as an examiner.

The examination will be of 200 total marks consisting of the following components:

- | | |
|---------------------|-------------------|
| a) Four Short cases | Total Marks = 100 |
| b) One Long Case | Total Marks = 50 |
| c) Oral examination | Total Marks = 50 |

Each short case will be of 07 minutes duration; 05 minutes will be for examining the patient and 02 minutes for discussion. The long case and oral examination will each be of 15 minutes duration. The candidates scoring 50 % marks in each component of the Clinical & Oral Examination will pass this part of the Intermediate Examination.

The candidate will have to score 50 % marks in written and 50 % marks in the clinical and oral examination with a cumulative score of 60%, to be declared successful in the Intermediate Examination.

A maximum total of four attempts (availed or un availed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his intermediate examination within the above mentioned limit of four attempts, the candidate shall be removed from the training program, and the seat would fall vacant, stipend/scholarship if any would be stopped.

PHASE-II OF THE COURSE

The candidate will register for 2nd phase of residency training

b. The candidate will submit an application and the result of passing Intermediate Examination Examination to the registrar's office as soon as possible, but no later than 90 days after the declaration of intermediate examination result.

c. Initiation of research will be intimated by the candidate to the Registrar

- d. The fee for this phase of training will be deposited by the candidate according to University Rules
- e. Failure to deposit fee will result in termination of training. However a grace period of 30 days may be granted in exceptional circumstances.

Training

The training will be competency based as detailed in **Appendix F** and these competencies will be assessed in Continuous Internal assessments

Continuous Internal Assessments (CIS)

i. Continuous Internal Assessments would be submitted by the supervisor considering the following:

a) Workplace Based Assessments (**Appendices F & G**)

These assessments will include Generic and Specialty Specific Competency Assessments

Multisource Feedback Evaluation

b) Assessment of Candidates' Training Portfolio

ii. The 03 monthly Continuous Internal Assessment proforma (**Appendix G**) will be submitted by the supervisor in sealed envelope / computer based proforma to the Registrar's Office for appropriate action. The same CIS proforma will be submitted by the appropriate supervisor after completion of rotation of any duration.

iii. The Registrar's Office will compile yearly performance report by averaging the submitted reports.

iv. The candidate would inform the Registrar in case of any delay/difficulty in CIS proforma submission as soon as possible.

v. Failure of the supervisor to submit CIS proforma after 02 reminders fortnight apart by the Registrar, would be reported to the Academic Council by the Registrar.

vi. A cumulative score of 75% shall be required to pass the yearly Continuous Internal Assessments and be allowed to continue in the training program.

vii. A candidate, who fails to achieve a cumulative score of 75% on yearly assessments, will be presented to an appropriate forum / Deans Committee to be considered for remediation / elimination from the program and standard operating procedure will be developed for this purpose.

viii. Registrar's office shall keep the record of all the CIS of every candidate in the candidate's file and transmit the cumulative annual CIS of every candidate at yearly interval. The examination department shall add the marks of Continuous Internal assessment to the final examination.

ix. The cumulative score of all training years will be added together to provide a final cumulative score of Continuous Internal Assessments by the examination department.

x. On the basis of formula of 10 % weightage for Continuous Internal Assessment, 100 marks in the final examination would come from cumulative Continuous Internal

Assessments i.e Final examination of 1000 marks and Continuous Internal Assessment Weightage of 100, giving a total of 1100 marks to the Final Examination in addition to 400 Marks for thesis evaluation.

1. Basic Concepts and Skills form. M.D.(Cardiology)Course.
2. Research Methodology and Biostatistics.
3. List and Education Objectives of the Rotation in Medicine for 1 year.
4. Educational Objectives for subjects of
 - i. Paper-1 of Intermediate Evaluation “Principles of Cardiology”
 - ii. Paper-2 of Intermediate Evaluations. “Basic Science Education”.

II. **PHASE-II OF THE COURSE.**

1. Educational Objectives of the Cardiology (Theory and Skills)
2. Educational Objective of Rotations in Medicine for 1 year.

Syllabus for Phase - I Basic Science Education for M.D.Cardiology Course.

- 1) **Anatomy & Organization of Heart and Blood Vessels**
- 2) **Physiology**
- 3) **Pathophysiology**
- 4) **Diagnosis**
 - i) History.
 - ii) Examination of Patient.
 - iii) General Physical Examination.
 - iv) Special Investigation.
 - v) Commonly used lab test.
 - vi) Catheterization.

- 5) Epidemiology
- 6) Histopathology
- 6) Molecular Biology

Curriculum Contents and Organizer for MD Cardiology Courses

PHASE-1.

1) Basic concepts and skills for MD Cardiology courses

- a) History of cardiology
- b) Professional values, student teacher relationship
- c) Orientation of OPD, Minor surgical procedures, ward and learning resources
- d) History taking and case presentation
- e) Clinical Examination

2) Research Methodology and Biostatistics

- a) An understanding of the development of research protocol synopsis in Cardiology
- b) The ability to design and execute a research project
- c) The ability to analyze critically, scientifically articles and review current practice by following appropriate text and journals The ability to communicate scientifically.
- d) Develop and understanding an ability of diagnostic techniques and therapeutic measures.

3) List of educations objectives of the Rotations

(Medicine) Rotation of General Medicine of a student of MD Cardiology in learning the basic relationship between Internal medicine & cardiology

4) Education objectives for subject of

- i) Paper –1 Principals of Cardiology.
- ii) Paper –2 Basic Science Education

PHASE II.

Theory:

- a) Ischaemic Heart Disease
- b) Valvular Heart Disease
- c) Cardiomyopathy/Heart Failure
- d) Myocarditis / Pericarditis
- e) Congenital Heart Disease
- f) Hypertension
- g) Arrhythmias/Pacing etc
- h) Endocrine disease and Heart
- i) General cardiology
- j) Cardiology and systemic diseases
- k) Vascular disease
- l) Infections and heart

Diagnostics

- a) ECG
- b) ETT
- c) Echocardiography
- d) Thallium
- e) Catheterization
- f) Electro physiology

Skills

Orientation in Cath Lab

Section – 6

RESEARCH THESIS

During course on Research Methodology and Biostatistics held during Phase-I of the Course, the candidate is expected to develop synopsis of Research.

GUIDELINES FOR PREPARATION OF SYNOPSIS

The applicants should organize thesis synopsis to address the following points: -

- a) Title :
- b) Introduction : Should clearly manifest why the present Work is undertaken.
- c) Literature review : Place the project in academic context by Referring to the major work by others on the Topic.
- d) Objectives : Define clearly the aims of the research Proposal.
- e) Significance : Explain the significance of the proposal for the field and the country.
- f) Plan : Give year wise tentative plan of the work.
- g) Methodology : Explain the approach and methods he will Follow.
- h) Bibliography : Up-to-date references.

GUIDELINES FOR THESIS FORMAT

The thesis must be bound in accordance with the following specifications:

- a) Quarts approximately 10 inches, except for drawings and maps on which no restriction is placed. A margin of 1.5 inches to be left on left hand side. Cloth bound in standard size. Lettered boldly up back in gold (1 inch letters)
- b) The front should bear the title, name of the candidate and the insignia of the University.

Section – 7

LOG BOOK

Total marks for whole training program: 200

Marks for each year: 50

Log Book will consist of following parts: -

1. Teaching assignments: 10 Marks
Lectures/Demonstrations/Tutorials
2. Written assignments: 10 Marks
Review articles/papers
3. Attendance and Paper Presentation 10 Marks
In Conferences:
4. Technical Skills: 10 Marks
5. Affective and Interpersonal Skills 10 Marks

Log Book will be signed by the Supervisor / Co-Supervisor regularly. Evaluation of Log Book will be performed by the Supervisor at the end of each year.

Section – 8

EXAMINATIONS

(The authors of curriculum of specialty degree course are requested to retain title of relevant degree only)

1. ENTRY EVALUATION;

If the number of candidates will be more than the available seats, then the University of Punjab will hold Entry evaluation, every year on the date as announced by the controller of examination of University of Punjab. The examination will consist of Written Paper or Interview or Both, as approved by the Boards of Studies of Medicine and Dentistry.

The Fee for Entry Evaluation will be determined by the Board of Studies of Medicine and Dentistry

2. INTERMEDIATE EVALUATION; (Part-1 Examination)

- (a) All candidates admitted in courses will appear in Part–1 examination at the end of their year –1 of Training.
- (b). The candidates will be expected to pass this examination within three attempts.
- (c). The candidates who will not pass this examination within two and half years after their admission, their name will be removed from the course.
- (d). The Examination will Consist of Two Papers
Paper-1; Applied Basic Science Education

Paper-2; Principles of Cardiology.

- (e) For Part-I Examination the Paper 1 and Paper 2 will be set by two panels of four (4) examiners comprising of one examiner will be of the specialty of the course and three specialists for each paper who were involved in teaching the curriculum of Paper 1 and Paper 2 of MD (Cardiology) during the Phase-I respectively. Professor in the special subject of admission will act as Head Examiner.
 - (f) Paper :- Each paper will carry 100 Marks. Time allowed for each Paper will be three hours.
 - (g) The Pass Marks will be 60% in each paper.
 - (h) Papers will have 20 Short Essay Questions of 5 marks each.
 - (i) **Eligibility to appear in Part-I Examination**
 1. Application by the candidate recommended by the Supervisor.
 2. Certificate by the Supervisor that candidate has regularly attended at least 75% of the Lectures, Seminars, Practical, demonstrations of the Phase-I education.
 3. Bank Challan Form of payment of examination fee of Rs.500 (five hundred). The Board of Studies of Medicine/Dentistry can change the fee from time to time.
- 3. LONGITUDINAL EVALUATION (Log Book, Assignments, Assessments).**

Throughout the length of the course , the performance of the candidate will be recorded on the Log-Book. The Log Book will reflect the performance of the candidate on following parameters.

- i- Year wise record of the competence of technical skills.
- ii- Year wise record of the assignments.
- iii- Year wise record of the evaluation regarding affective and interpersonal behaviors.
- iv- Year wise record of Journal Clubs, Conferences, Lectures attended.

The Log Books will be developed and approved by Committee of Specialty Faculty in each subject. The performance of the candidate will be evaluated on yearly basis.

Marks for each year	=	50
Total Marks for whole of Training Program	=	200

The evaluation will be made by the Supervisor (in consultation with the Co-Supervisor if appointed)

4. REASEARCH THESIS.

4.(a) Characteristics of the Research Topic.

The Research Topic in clinical subjects should address 20% to the Related Applied Basic Sciences and in Basic Sciences should address 20% to the Related Applied Clinical Sciences. The research Topic must consist of a reasonable sample size and sufficient No. of Variables to give training to the candidate to conduct research to acquire data, analyze data and reach results, discuss results and draw conclusions and thus test the hypothesis.

4.(b) Preparation of Synopsis.

The applicants should organize thesis synopsis to address the guidelines mentioned in the Annex–II of the Revised Regulations for PhD Programs No. 1300/GS, Dated 21-06-2001.

4.(c) Submission / Evaluation of Synopsis.

Synopsis of research project will be submitted during the year-1 of the course. The Synopsis will be submitted through the supervisor to the Principal / Dean of the Institution. The synopsis will be evaluated by the following committee.

- | | |
|--|------------------|
| 1. Principal / Dean or his representative. | Chairman. |
| 2. Supervisor of the student | Member/Secretary |
| 3. Prof. of Medicine | Member |
| 4. One Prof. appointed by the Principal/Dean | Member |

After the approval, by the Committee the synopsis will be submitted to the respective Board in the University of Punjab for further approval by the Vice Chancellor of the University of Punjab.

4.(d) Submission of Thesis.

- 1) The Thesis must be bound in accordance with the specifications mentioned in the Annex-III of the Revised Regulations for the PhD Programs No. 50/GS, Dated 16-12-2000.
- 2) Four (4) copies of the Thesis must be submitted at least 1 year before the commencement of the written and oral Examination.
- 3) The minimum duration between approval of synopsis of research and submission of thesis should be 2 years; the maximum duration will be 10 years.
- 4) The Thesis will be submitted along with Bank Challan Form of Rs. 2000 (two thousand) paid in the account of the University of Punjab.
- 5) Application for Thesis Evaluation recommended by the Supervisor.

4.(e) The Evaluation of the Thesis.

The thesis will be examined by three examiners appointed as examiner for the Final Examination of MD (Cardiology) courses. (Part-2 Examination). Each of the examiners will be provided a copy of the Thesis at least Three (3) months before the commencement of examination.

The Candidates will defend their Thesis in presence of their supervisor or Co-Supervisor during the Part-2 Examination. Total Marks for Thesis Evaluation will be 200. The Marks with two examiners will be 66 each and 68 with the head Examiner.

5. FINAL EVALUATION; (Part-2 Examination)

5.(a) Eligibility to appear in Part-2 Examination.

- 1- The candidate has completed the prescribed period of training of the course.
- 2- The candidate has passed the Intermediate Evaluation. (Part-1 Examination).
- 3- The candidate had submitted the Research Thesis at least 1 year before the date of commencement of oral examination.
- 4- Certificate by the Supervisor that the Log Book of candidate is complete in all aspects and is signed by the Co-Supervisor and the Supervisor. The candidate must secure at least 60% marks in log book evaluation by the Supervisor. The original Log Book will be presented by the candidate during Practical/Oral examination.
- 5- The application form for Part-II MD (Cardiology) examination with recommendations of the Supervisor.

6- The Bank Challan Form for the payment of the Examination Fee of Rs.2000 (two thousand). Board of Studies of Medicine/Dentistry can change the examination fee from time to time.

5.(b) Components of the Part-2 Examination.

- | | | |
|----|----------------------|-------------|
| 1- | Theory | (300 Marks) |
| 2- | Practical/Oral | (300 Marks) |
| 3- | Thesis. | (200Marks) |
| 4- | Log Book Evaluation | (200 Marks) |
| | Total Marks = | 1000 |

(i) Theory. (Three Papers) (100 Marks and 3-hrs. each Paper)

Two Papers in Cardiology
One Paper in Anatomy, physiology,
pathophysiology of Cardiology

(ii) Practical / Viva

Time for Anatomy, physiology, pathophysiology, Pathology =33 %
(100 Marks)

Time for Cardiology=66% (200 Marks)

Practical/Oral Examination for MD (Cardiology)

Subject	Marks	Assessment Techniques	Marks
Cardiology	200	Long Cases – 2	40
		Short Cases – 4	40
		Specimens	20
		Instruments	20
		Investigation for interpretation including ECG, X-ray, Echo, Nuclear scans, Angio reports etc.	30
		Table Viva	50
Anatomy, physiology, pathology	100	Specimens	25
		Slides	25
		Table Viva	50

(iii) Defense of the Thesis . (200Marks).

In the Presence of the Supervisor, or Co-Supervisor or representative of the Supervisor.

5.(c) Contents of the Theory Papers.

Paper 1 of Specialty – 50 % Long Essays and 50 % short essays.

Paper 2 of Specialty- 50% Long Essays and 50% short essays.

Elective / Pathology- 50% Long Essays and 50% short essays.

5.(d) Number of Examiners.

The Final Evaluation (Part-2 Examination) will be conducted by a board of three Examiners.

One Pathologist, and Two examiners of the specialty of Cardiology. The senior examiner of the specialty (Cardiology) will be the chairman of the board.

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All examiners have equal functions except the chairman who will be responsible to conduct the examination process and send result to the controller university.

5. (e) Result.

The candidates who will pass their Theory, Oral Practical, and Defense of the Thesis will be declared pass.

The Candidates who will Pass in Thesis, but fail in Theory or Oral or both will re-appear only in Theory and Oral again.

The Candidates who will pass Theory and Oral, but fail Thesis will re-appear in Defense of the Thesis.

To pass as ordinary, the candidate must obtain 60% marks in each of 3 components.

To pass with distinction, the candidate must obtain overall marks should be 80 % or above.

Summary of credit hours

MD cardiology

S.No	Months/years of training	Module NO	Credit hours		Total No of Credit hours	Grand total Credit hours
			Theory	Clinical		
	01 to 5.5 months/1 year	1	5.5	11	16.5	21.75
	5.5 months to 06 months/ 1 year	workshops	5.25		5.25	
	07 to 12 months/1 year	Module No. 2-5	6	12	18	18
	13 to 18 months/ 2 year	Module No. 06 to 09	6	12	18	36
	19-24 months/2 year	Module No. 10- 13	6	12	18	36
	25 to 30 months/3 year	Module No. 14 to 17	6	12	18	36
	31 to 36 months/3 year	Module No. 18 -21	6	12	18	36
	37 to 42 months/ 4year	Module No. 22-25	6	12	18	36
	43 to 48 months/4 year	Module No. 26-29	6	12	18	36
	49-54 months/ 5year	Module No. 30-33	6	12	18	36
	55-60 months/ 5year	Module No. 34-37	6	12	18	36
Total credit hours in 5 years training program						183.75≈184