

August 2009

[KV 074]

Sub. Code: 1503

D.M. DEGREE EXAMINATION

(Super Specialities)

Branch II - Cardiology

(Revised Regulations)

Paper IV– RECENT ADVANCES

Q.P. Code: 161503

Time: Three hours

Maximum: 100 Marks

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays:

2 x 20 = 40

1. Classification and pathogenesis of stent thrombosis.
2. Discuss in detail the current status of pharmaco- invasive therapy for STEMI.

II. Write short notes on:

10 x 6 = 60

1. SYNTAX – Trial.
2. WATCH MAN device.
3. New stent technologies.
4. Cardio cerebral resuscitation (CCR).
5. Multi site pacing.
6. Preventive options for contrast nephropathy.
7. Triple anti-platelet therapy.
8. β blockers for aortic regurgitation.
9. Percutaneous aortic valve implantation.
10. Speckle tracking.

August 2011

[KZ 011]

Sub. Code: 1424

**DOCTORATE OF MEDICINE (D.M.) DEGREE EXAMINATION
(SUPER SPECIALITIES)**

**BRANCH II – CARDIOLOGY
RECENT ADVANCES**

Q.P. Code: 161424

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. The year 2010 in the management of Non ST segment Elevation Acute Coronary Syndrome.	11	35	15
2. Discuss Electroanatomical Correlation of Repolarization Abnormalities in Brugada Syndrome.	11	35	15

II. Write notes on :

1. Echocardiography in intervention for Mitral Stenosis.	4	10	7
2. Cardiac Autonomic Neuropathy.	4	10	7
3. Contrast enhanced ultrasound.	4	10	7
4. Imaging in Pulmonary hypertension.	4	10	7
5. Left Atrial Septal Pouch.	4	10	7
6. Compare Everolimus-Eluting Bioresorbable Vascular Scaffolds to Metal platform Coronary Stents.	4	10	7
7. Clopidogrel Pharmacogenomics.	4	10	7
8. Transradial coronary angiography.	4	10	7
9. Outpatient percutaneous Coronary interventions.	4	10	7
10. Stitch phenomenon.	4	10	7

February 2012

[LA 011]

Sub. Code: 1424

**DOCTORATE OF MEDICINE (D.M.) DEGREE EXAMINATION
(SUPER SPECIALITIES)**

BRANCH II – CARDIOLOGY

RECENT ADVANCES

Q.P. Code: 161424

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Discuss in detail biomarkers in acute coronary syndrome with reference to ischemic cascade and their impact on management of ACS with emphasis on future directions.	16	35	15
2. Diagnosis, management strategies in atrial fibrillation with emphasis on non pharmacological therapy.	16	35	15

II. Write notes on:

1. Embolic protection and thrombectomy devices.	4	10	7
2. Guidelines for anticoagulation in pregnancy.	4	10	7
3. Indications for AECG.	4	10	7
4. Polypill.	4	10	7
5. Erythropoietin resistance.	4	10	7
6. Molecular determinants of arterial stiffness.	4	10	7
7. Myocardial performance index.	4	10	7
8. Indications for EP STUDY.	4	10	7
9. Newer anti platelet drugs.	4	10	7
10. Implantable recorders.	4	10	7

[LB 011]

AUGUST 2012
D.M – CARDIOLOGY
Paper – IV RECENT ADVANCES
Q.P. Code: 161424

Sub. Code: 1424

Time: 3 hours
(180 Min)

Maximum: 100 marks

Answer ALL questions in the same order.

I. Elaborate on:

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Discuss current concepts of ion channelopathies in the genesis of arrhythmias.	16	35	15
2. Discuss current status of drug eluting stents in the management of coronary heart disease and future directions.	16	35	15

II. Write notes on:

1. Describe diagnosis and management of stress cardiomyopathy.	4	10	7
2. Describe echo assessment for cardiac resynchronization therapy.	4	10	7
3. Give an account on newer biomarkers in acute coronary syndrome.	4	10	7
4. Optical coherence tomography-technique, indications, superiority over other imaging techniques- describe.	4	10	7
5. Describe evidence of fetal origins of coronary heart disease.	4	10	7
6. Describe upstream therapy for atrial fibrillation.	4	10	7
7. Describe PET scan assessment of myocardial viability.	4	10	7
8. Current indications and limitations of computed tomographic coronary angiography.	4	10	7
9. Briefly describe the mechanical assist devices used in the treatment of heart failure.	4	10	7
10. Discuss about alcohol septal ablation therapy-indications, technique, contraindications and results.	4	10	7

(LD 011)

AUGUST 2013

Sub. Code:1424

D.M. – CARDIOLOGY
Paper – IV RECENT ADVANCES
Q.P.Code: 161424

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X15=30)

1. Professional practice guidelines for diagnosis, risk stratification and management of unstable angina and non ST elevation myocardial infarction.
2. Mitral valve repair versus replacement-discuss suitable pathology for either strategy and which is the preferred therapy?

II. Write notes on:

(10X7=70)

1. Methods to identify vulnerable plaque.
2. Advantages of newer generation drug eluting stents.
3. Procedure and results of transcatheter aortic valve replacement.
4. Describe arterio lusoria.
5. Reversible platelet inhibition and its clinical application.
6. A brief account on pharmacogenetics.
7. Metabolic modulation with drugs.
8. Pathobiology of restenosis and instent restenosis.
9. Pharmacology of vernakalant.
10. Medical therapy versus revascularization in stable coronary artery disease.

(LF 011)

AUGUST 2014

Sub. Code:1424

D.M. – CARDIOLOGY
Paper – IV RECENT ADVANCES
Q.P.Code: 161424

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X15=30)

1. Describe the present status and the technique of Renal Artery Denervation
2. What is fractional flow reserve and discuss its role in the management of coronary artery disease

II. Write notes on:

(10X7=70)

1. Biovascular scaffolds
2. Ambulatory BP monitoring
3. Serelaxin
4. TAVI (Trans catheter Aortic valve implantation)
5. Newer cardiac Biomarkers in acute coronary syndrome
6. Impella device.
7. Indications for cardiac MRI.
8. SYNTAX Score.
9. Newer drugs in the treatment of Pulmonary Hypertension
10. Myocardial Contrast Echo.

(LG 011)

FEBRUARY 2015

Sub. Code:1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the management strategy in acute ST segment elevation MI.
2. Discuss the echo assessment, technique and complications of device closure of atrial septal defect.

II. Write notes on:

(10 x 7 = 70)

1. Baroreceptor stimulation in the management of resistant hypertension.
2. Contrast echo in Congenital heart disease.
3. PFO Closure – Current indication.
4. Minimally invasive coronary bypass surgery
5. Aquaretics.
6. Pleiotropic effects of Statins.
7. Indications for AICD.
8. BNP & Heart failure.
9. Role of gene therapy in CAD.
10. Newer vasodilators in Pulmonary Hypertension.

D.M. – CARDIOLOGY
Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss about the methods of coronary intravascular imaging. Discuss the pros and cons of each. Discuss the clinical application in scientific cardiac practice.
2. Discuss the technique, concept, design and initial results of percutaneous aortic valve replacement.

II. Write notes on:

(10 x 7 = 70)

1. Class I indication for coronary angiogram.
2. Imaging of vulnerable plaque current status.
3. Molecular biology of the arterial wall.
4. Current status of IABP.
5. Cardio pulmonary exercise testing in chronic heart failure.
6. Mechanism and treatment of slow flow phenomenon.
7. Role of primary PCI in AMI.
8. Gene therapy in Ischemic Heart Disease
9. Current status of anaemia and Heart.
10. Advances in atrial fibrillation management.

(LJ 011)

AUGUST 2016

Sub. Code:1424

D.M. – CARDIOLOGY
Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Mechanical support for circulation.
2. Coronary Stents. Advances in Coronary Stent system.

II. Write notes on:

(10 x 7 = 70)

1. In-stent Restenosis.
2. MitraClip.
3. His Bundle Electrogram.
4. Interventional treatment of Hypertrophic Obstructive cardiomyopathy.
5. Satellite cells.
6. Duplex Ultrasound Imaging.
7. 3D – Speckle Tracking Echocardiography.
8. Spontaneous coronary artery dissection.
9. Nonpharmacologic Prevention of stroke in atrial fibrillation.
10. Extracorporeal membrane oxygenation.

(LK 011)

FEBRUARY 2017

Sub. Code:1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Percutaneous Interventions in congenital heart diseases.
2. Cardiovascular regeneration and gene therapy.

II. Write notes on:

(10 x 7 = 70)

1. Endomyocardial biopsy.
2. Indications for intravascular imaging.
3. Serelaxin.
4. Cardiac Resynchronization.
5. Direct cardiac mapping.
6. Rate-Adaptive pacing.
7. Pacing to prevent atrial fibrillation.
8. Current status of primary percutaneous coronary intervention.
9. Management of coronary stent restenosis.
10. Hybrid coronary revascularization.

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the role of MRI in cardiology.
2. Current status of interventions in structural heart disease in children. Discuss in detail about the indications and contraindications of each.

II. Write notes on:

(10 x 7 = 70)

1. Transcatheter Aortic Valve Implantation (TAVI).
2. Quantitative coronary angiography.
3. Hybrid coronary revascularization.
4. Gene therapy in ischemic heart disease.
5. Rate adaptive pacemakers.
6. Recent guidelines on hypertension- Indian context.
7. Drug eluting balloons.
8. Newer drugs in management of pulmonary hypertension.
9. Therapeutic hypothermia.
10. Robotic cardiac surgery.

(LN 011)

AUGUST 2018

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Management of chronic total occlusion of coronary arteries.
2. Role of Magnetic resonance Imaging in cardiac diseases.

II. Write notes on:

(10 x 7 = 70)

1. Recent Guidelines for CPR (Cardiopulmonary resuscitation).
2. Non HDL Cholesterol (NON HDL C).
3. Newer drugs in the management of pulmonary hypertension.
4. Natriuretic Peptides.
5. Emerging Biomarkers in Acute Coronary Syndromes.
6. Direct Thrombin Inhibitors.
7. Chlorthalidone.
8. Watchman device.
9. Evaluation of the Potential cardiac transplant Recipient.
10. Culottes technique.

(LO 011)

FEBRUARY 2019

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P.Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the role of various imaging and diagnostic procedures in pregnancy.
2. Left main stem Disease: Pathology, clinical features, management, recommendations and data.

II. Write notes on:

(10 x 7 = 70)

1. Therapeutic Cooling.
2. Pacemaker therapy in syncope.
3. Pill in Pocket concept for Cardiac Arrhythmia: What is new?
4. Trans catheter aortic valve replacement: Current status and future.
5. Stent Strut fracture.
6. Robotic cardiac surgery.
7. Implanted devices to monitor heart failure.
8. Intra aortic Balloon counter pulsation: Current status.
9. Apixaban: Discuss in light of clinical data.
10. Onpump vs Offpump CABG: Discuss in light of latest data.

(LP 011)

AUGUST 2019

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Explain the practical approach to management of coronary bifurcation lesions. Support your points with available data.
2. Role of multi slice CT in modern day cardiology practice.

II. Write notes on:

(10 x 7 = 70)

1. Prasugrel vs Ticagrelor: Pharmacology, Clinical data and clinical role.
2. Present status of Intra vascular ultrasound in coronary interventions.
3. Targeted LV lead placement in Cardiac Resynchronisation Therapy for heart failure therapy.
4. Heart team approach.
5. Delayed Stenting in Acute Myocardial Infarction.
6. SYNTAX score and Euroscore.
7. Modern day cardiac catheterisation laboratory.
8. Chelation therapy in Cardiology: Rationale, Recommendations and latest data.
9. What have DEFER, FAME and FAME 2 trials done to cardiology practice?
10. Catheter interventions in hypertension.

(LQ 011)

FEBRUARY 2020

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Myocardial infarction with non obstructive coronary artery.
2. Device management of ventricular septal defects.

II. Write notes on:

(10 x 7 = 70)

1. Drug-Eluting Balloons.
2. Comparison of Fibrinolytic Agents.
3. Cooled-Tip Radiofrequency Ablation.
4. Implantable Loop Recorder.
5. Endovascular repair of aortic aneurysms.
6. Myocardial Strain Imaging.
7. Azilsartan.
8. Left ventricular assist devices.
9. Rivaroxaban.
10. Role of optical coherence tomography during coronary Interventions.

(LR 011)

NOVEMBER 2020
(AUGUST 2020 SESSION)

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Current status in management of left main disease & discuss syntax trial.
2. Discuss in detail about percutaneous aortic valve implantation -TAVI.

II. Write notes on:

(10 x 7 = 70)

1. Paradigm heart failure trial.
2. Dronedaron.
3. Stent thrombosis.
4. Pulmonary hypertension current therapy.
5. Indication for ICD.
6. HOPE 3 trial.
7. Trouble shooting pacemaker.
8. Cardiac involvement in COVID 19.
9. PLATO trial.
10. Levosimendan.

(DM 0221)

FEBRUARY 2021

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the NOAC (Novel or new Oral Anti Coagulants) in clinical practice and important clinical trials of NOAC.
2. Discuss the hardware and intervention in CTO (Chronic Total Occlusion).

II. Write notes on:

(10 x 7 = 70)

1. Indications for cardiac MRI.
2. Indication and role of Transesophageal Echo (TEE).
3. Reteplase.
4. Stent Thrombosis.
5. No Reflow Phenomenon.
6. Fondaparinux.
7. Pseudo Hypertension.
8. DEFER STEMI Trial.
9. Current Status of rotational atherectomy.
10. 3 D Echo (3 Dimensional Echo) in clinical practice.

(DM 0821)

AUGUST 2021

Sub. Code: 1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Diagnosis and management issues in cardiovascular disease during the COVID 19 Pandemic.
2. SGLT2 Inhibitors in heart failure, mechanisms, limitations, recent trials and as a therapeutic option-discuss.

II. Write notes on:

(10 x 7 = 70)

1. ISCHAEMIA trial.
2. TAVR in mild AS.
3. Vericiguat.
4. Current status of PCSK9 inhibitors.
5. Device closure of left atrial appendage.
6. Role of LV support devices in cardiogenic shock.
7. TAILOR –PCI trial.
8. Refractory hypertension –treatment strategies.
9. Bioabsorbable stent scaffolds.
10. Recent trials in cardiogenic shock.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0822]

AUGUST 2022

Sub. Code :1424

D.M. – CARDIOLOGY

Paper IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. How to set up regional STEMI networks: a stent-save a life! Initiative.
2. Transcatheter therapy for Tricuspid regurgitation.

II. Write notes on:

(10 x 7 = 70)

1. TWILIGHT-STENT study.
2. Renal artery Denervation.
3. Interpretation of clinical trials.
4. Role of Cardiovascular Magnetic Resonance Imaging in Cardiomyopathies.
5. Polypill in current practice.
6. Role of Ambulatory blood pressure monitoring in systemic hypertension.
7. Extrapulmonary manifestations of COVID-19.
8. Oral anticoagulations in pregnancy.
9. Fifth pillar in heart failure management.
10. Recent advances in syntax score.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0124]

JANUARY 2024

Sub. Code :1424

D.M. – CARDIOLOGY

PAPER IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Current approach in the invasive management of pulmonary embolism with various trials.
2. Non ST elevation ACS: current practical guidelines for risk stratification and management.

II. Write notes on:

(10 x 7 = 70)

1. Twiddler syndrome.
2. Barostim-neo system.
3. FLOWER-MI trial.
4. DAPT de-escalation strategy.
5. Stent thrombosis.
6. Chelation therapy in cardiology.
7. Hypertensive emergency.
8. Macitentan.
9. Cardiac rehabilitation.
10. Therapeutic hypothermia.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0824]

AUGUST 2024

Sub. Code :1424

D.M. – CARDIOLOGY

PAPER IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the current management guidelines for STABLE ischemic heart disease on the basis of recent trials.
2. Recent advances and future trends in multimodality cardiac imaging.

II. Write notes on:

(10 x 7 = 70)

1. Current status of PCSK9 inhibitors.
2. Catheter based therapy for atrial fibrillation.
3. Novel therapeutic options in heart failure.
4. His bundle pacing.
5. Options of treatment for refractory angina.
6. Percutaneous interventions in treatment of Hypertension.
7. Estimating Risk of ASCVD.
8. Newer oral anticoagulant therapy.
9. VSD device closure.
10. Primary PCI in COVID-19 patients.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0225]

FEBRUARY 2025

Sub. Code :1424

D.M. – CARDIOLOGY

PAPER IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the NOACs (Novel or New Oral Anticoagulants) in clinical practice and important clinical trails of NOACs.
2. Etiology, pathogenesis and management of dissecting aortic aneurysm.

II. Write notes on:

(10 x 7 = 70)

1. DAPT De-escalation therapy.
2. OCTOBER Trail.
3. Vericigaut.
4. Watchman device.
5. Non-pharmacological therapy of hypertension.
6. Hybrid coronary revascularization.
7. Newer drugs in pulmonary hypertension.
8. Syntax score.
9. Current status of IABP.
10. Optical coherence tomography.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[DM 0126]

JANUARY 2026

Sub. Code :1424

D.M. – CARDIOLOGY

PAPER IV – RECENT ADVANCES

Q.P. Code: 161424

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss in detail clinical, echo and catheterization features of Patent Ductus Arteriosus with interventional management.
2. Discuss the hemodynamics, causes and management of acute mitral regurgitation.

II. Write notes on:

(10 x 7 = 70)

1. Balloon atrial septostomy.
2. Pharmacologic versus Interventional management for ST segment elevation myocardial infarction.
3. Measurement of Coronary blood flow.
4. Pulsed field ablation.
5. Coronary perforation-risk factors and management.
6. Endomyocardial biopsy.
7. Indications for reoperation following surgical repair of Tetralogy of Fallot.
8. ZILTIVEKIMAB.
9. Ambrisentan.
10. IVC filters.
