

शहीद धर्मभक्त राष्ट्रिय प्रत्यारोपण केन्द्र
नेपाल स्वास्थ्य सेवा, मेडिसिन समूह, कार्डियोलोजी उपसमूह, सिनियर रजिष्ट्रार/रजिष्ट्रार आठौं (८) तहको
प्रतियोगितात्मक परीक्षाको लागि पाठ्यक्रम

एवं परीक्षा योजना

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :- लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

प्रथम चरण (First Phase) : लिखित परीक्षा योजना (Written Examination Scheme)

| Paper | Subject | | Marks | Full Marks | Pass Marks | No. Questions & Weightage | Time Allowed |
|-------|-------------------|--|-------|------------|------------|--|--------------|
| I | General Subject | Part I: Management | 35 | 100 | 40 | 3 × 5 = 15 (Short answer) 2 × 10 = 20 (Long answer) | 3.00 hrs |
| | | Part II: General Health Issues | 35 | | | 3 × 5 = 15 (Short answer) 2 × 10 = 20 (Long answer) | |
| | | Part III: Human Organ Donation & Transplantation | 30 | | | 3 × 10 = 30 (Long answer) | |
| II | Technical Subject | | | 100 | 40 | 10 × 10 = 100 (Long answer) | 3.00 hrs |

द्वितीय चरण (Second Phase)

| Subject | Full Marks | Examination |
|-----------|------------|-------------|
| Interview | 30 | Oral |

द्रष्टव्य :

- यो परीक्षा योजनालाई प्रथम चरण (लिखित परीक्षा) र द्वितीय चरण (अन्तर्वार्ता) गरी दुई चरणमा विभाजन गरिएको छ ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा तोकिए अनुसार हुनेछ ।
- प्रथम पत्रको Part I, Part II र Part III को लागि छुट्टाछुट्टै (Part I को लागि एउटा, Part II को लागि एउटा र Part III को लागि एउटा) उत्तरपुस्तिका हुनेछ भने द्वितीय पत्रको लागि प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रममा जे सुकै लेखिएको भएतापनि पाठ्यक्रममा परेका ऐन, नियमहरू, परीक्षाको मिति भन्दा ३ महिना अगाडी (संशोधन भएका वा संशोधित भई हटाईएका वा थप गरी संशोधित भई कायम रहेका) लाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनोट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :-

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Paper I: General Subject

(Management, General Health Issues, Human Organ Donation & Transplantation)

Part I: Management

1. Management: - concept, principles, functions, scope, role, level and skills of managers
2. Hospital management
3. Participative management: concept, advantages and disadvantages, techniques of participation
4. Time management: concept, advantages, and disadvantages
5. Conflict management: concept, approaches to conflict, levels of conflict, causes of conflict and strategies for conflict management
6. Stress management: concept, causes and sources of stress, techniques of stress management
7. Leadership: concept, functions, leadership styles, leadership and management effectiveness
8. Coordination: concept, need, types, techniques, and approaches of effective coordination
9. Communication: concept, communication process and barrier to effective communication, techniques for improving communication

Part II: General Health Issues

1. Present Constitution of Nepal (health and welfare issues)
2. National Health Policy, 2071
3. International health agencies: role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
4. Medical ethics in general and its application
5. Indigenous and traditional faith healing and health practices
6. Supervision, types and its usage in health sector
7. Monitoring and evaluation system in health
8. Health management information system
9. Health insurance and financing in health care
10. Effects of environment in public health: air pollution, domestic pollution, noise pollution
11. Importance of water, sanitation and hygiene in public health
12. Effects of disaster in public health: deforestation, land slide, flood, earthquake and fire
13. Health volunteers involvement in health service delivery
14. Counseling: - concept, type, importance and its application in health service delivery

Part III: Human Organ Donation and Transplantation

1. General concept of solid organ donation and transplantation
 - 1.1 History of organ transplantation in Nepal
 - 1.2 Immunology and immunosuppressant drugs used in organ transplantation
 - 1.3 Complications among organ transplant recipients and management
2. Human Organ Transplant Act and Regulations
 - 2.1 Human Organ Transplantation (Regulation and Prohibition) Act- 2055
 - 2.2 Human Organ Transplantation (Regulation and Prohibition) Act- 2072
 - 2.3 Human Organ Transplantation Regulations- 2073
 - 2.4 Concept and practice of international rules and regulations on organ donation and transplantation
3. General knowledge about Shahid Dharmabhakta National Transplant Center

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Paper II: Technical subject

Section (A): 40 %

1. Clinical Cardiology

- 1.1 History taking and physical examination in cardiology
- 1.2 History, physical examination, diagnosis, management and prognosis of following cardiovascular diseases and conditions
 - 1.2.1 Coronary artery disease
 - 1.2.1.1 Rheumatic fever and Rheumatic Heart Diseases
 - 1.2.2 Systemic hypertension
 - 1.2.3 Rheumatic fever and rheumatic heart disease
 - 1.2.4 Congenital heart disease
 - 1.2.5 Pulmonary Thrombo-embolism and arterial hypertension
 - 1.2.6 Heart Muscle Diseases
 - 1.2.7 Cardiomyopathy
 - 1.2.8 Vascular diseases
 - 1.2.9 Tumors of heart
 - 1.2.10 Heart failure
 - 1.2.11 Arrhythmia
 - 1.2.12 Sudden cardiac death and cardiopulmonary resuscitation (CPR)
 - 1.2.13 Pericardial diseases
 - 1.2.14 Systemic diseases involving heart and blood vessels
 - 1.2.15 Genetics, Molecular biology and immunology related to cardiology
 - 1.2.16 Geriatric Heart Diseases
 - 1.2.17 General Anesthesia and non cardiac surgery in heart patients
 - 1.2.18 Pericardial diseases
 - 1.2.19 Cardiac Arrhythmias
 - 1.2.20 Non-cardiac surgery in heart patients
 - 1.2.21 Pregnancy in heart diseases
 - 1.2.22 Approach to common cardiac symptoms like chest pain, shortness of breath and Syncope
- 1.3 Epidemiology of cardiovascular diseases, preventive cardiology, cardiac rehabilitation and recent advances in cardiology
- 1.4 Epidemiology and worldwide burden of cardiovascular diseases
 - 1.4.1 Cardiovascular risk factors
 - 1.4.2 Primordial, primary and secondary prevention of coronary heart disease
 - 1.4.3 Prevention of congenital heart diseases
 - 1.4.4 International and national prevention policies
- 1.5 Major recent and land marks studies and trials in cardiology
- 1.6 Cardiac rehabilitation: principles, rationale, recommendation and guidelines, practical implication of cardiac rehabilitation programs

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2. Non-invasive Cardiology and imaging

- 2.1 Principles, technique, interpretation of Electrocardiogram (ECG)
- 2.2 Chest X-ray in cardiovascular diseases
 - 2.2.1 Principles, indication, technique, interpretation of Holter monitoring
 - 2.2.2 Principles, indication, technique, interpretation of Ambulatory blood pressure monitoring
 - 2.2.3 Techniques, exercise protocols, indication, contraindication, interpretation, limitations of exercise ECG stress test

3. Echocardiography

- 3.1 General principles
- 3.2 Trans-thoracic echocardiography
- 3.3 Three dimensional echocardiography
- 3.4 Trans-esophageal echocardiography
- 3.5 Principles of Doppler echocardiography
- 3.6 Assessment and quantification of chambers
- 3.7 Assessment and quantification of vascular lesions
- 3.8 Assessment and quantification of LV/RV function
- 3.9 Tissue Doppler, strain imaging and speckle tracking
- 3.10 Contrast echocardiography
- 3.11 Non-invasive estimation of pressure; volume and shunt lesions
- 3.12 Assessment of myocardial ischemia and viability using echocardiography
- 3.13 Echocardiography in emergency room
- 3.14 Segmental approach in congenital heart disease
- 3.15 General introduction of Fetal echocardiography
- 3.16 Assessment of prosthetic valve by echocardiography
- 3.17 Assessment of pericardial diseases by echocardiography
- 3.18 Nuclear cardiac Imaging: Types, indication, contraindications, interpretation clinical application
- 3.19 Cardiac CT: Indication, contraindication, interpretation, clinical application, use of CT coronary angiogram

Section (B): 40 %

4. Invasive cardiology / cardiac electrophysiology

- 4.1 Right and left heart catheterization: Indications, technique, interpretation
- 4.2 Invasive hemodynamic assessment
- 4.3 Coronary angiogram: Indication, contraindication, technique
- 4.4 Coronary Intervention: Principles, indication, technique
- 4.5 Different types of coronary stents and principles of use
- 4.6 Temporary pacemaker insertion: Indication, technique, complications
- 4.7 Pericardiocentesis: Indication, contraindication, technique
- 4.8 Intervention in structural and congenital heart diseases

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- 4.9 Radiation hazard and protection
 - 4.10 Complications in cardiac cath lab and their management
 - 4.11 Basics of intra-cardiac ECG
 - 4.12 General introduction to radiofrequency ablation
 - 4.13 Pacemakers, ICD and CRT: General introduction and indications
5. **Cardiac Complications and Management of the Patients Undergoing Major Non cardiac Surgery**
- 5.1 Evaluation and management of myocardial infarction or injury in patients undergoing major surgery
 - 5.2 Prevention and management of cardiac arrest during major noncardiac surgery
 - 5.3 Management of congestive heart failure during major noncardiac surgery
 - 5.4 Preoperative, intraoperative and postoperative management of cardiac complications in major Non cardiac surgery
6. **Cardiovascular Risk Assessment and Evaluations for Major Non-Cardiac Surgery**
- 6.1 Preoperative factors used to assess the risk evaluation
 - 6.2 Intraoperative factors used in assessment of risk of cardiac complications
 - 6.3 Post operative factors for assessment of risk

Section (C): 20 %

7. **Organs Donation and Transplantation**
- 7.1 Basic concept of organ donation and transplantation
 - 7.2 Concept of immunology in organ transplantation
 - 7.3 Cardiology assessment and other investigations of the donor and recipient undergoing heart transplantation
 - 7.4 Cardiac complications and their management in heart transplant recipient