

शहीद धर्मभक्त राष्ट्रिय प्रत्यारोपण केन्द्र

मानव अङ्ग प्रत्यारोपण विकास समिति, प्रविधिक सेवा, मेडिसिन समूह, पलमोनोलोजी उपसमूह, आठौं तह, सिनियर रजिष्ट्रार/रजिष्ट्रार (पल्मोनोलोजिष्ट) पदको खुला तथा आन्तरिक प्रतियोगितात्मक परीक्षाको 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	Management	25	100	40	5 × 5 = 25 (Short answer)	3.00 hrs
	General Health Issues & Related Legislations	40			4 × 5 = 20 (Short answer) 2 × 10 = 20 (Long answer)	
	Human Organ Donation & Transplantation	35			3 × 5 = 15 (Short answer) 2 × 10 = 20 (Long answer)	
II	Technical Subject (Pulmonology)		100	40	6 × 10 = 60 (Short answer) 2 × 20 = 40 (Long answer)	3.00 hrs

द्वितीय चरण (Second Phase) : अन्तर्वार्ता (Interview)

Subject	Full Marks	Examination
Interview	30	Oral

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा सोधिने प्रश्नसंख्या र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा दिईए अनुसार हुनेछ ।
- विषयगत प्रश्नमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिनेछ ।
- प्रथम र द्वितीय पत्रमा प्रत्येक खण्ड (Section) को लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । उम्मेदवारले प्रत्येक खण्ड (Section) को प्रश्नको उत्तर छुट्टाछुट्टै उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुन सुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम स्वीकृत मिति :- २०८१/०८/०४

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Paper I: General Subject
(Management, Human Organ Donation & Transplantation, General Health Issues & Related Legislations)

Section (A)

Short Questions	5 Question × 5 Marks = 25 Marks	25 Marks
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1. Management

- 1.1 Management: concept, principles, functions, scope, role, level and skills of managers
- 1.2 Participative management: concept, advantages and disadvantages, techniques of participation
- 1.3 Time management: concept, advantages, and disadvantages
- 1.4 Conflict management: concept, approaches to conflict, levels of conflict, causes of conflict and strategies for conflict management
- 1.5 Stress management: concept, causes and sources of stress, techniques of stress management
- 1.6 Planning: concept, principles, nature, types, instrument and steps
- 1.7 Motivation: concept, theories of motivation, reason for low productivity, techniques of employee motivation
- 1.8 Leadership: concept, functions, leadership styles, leadership and management effectiveness
- 1.9 Coordination: concept, need, types, techniques & approaches of effective coordination
- 1.10 Communication: concept, communication process and barrier to effective communication, techniques for improving communication
- 1.11 Decision making: Importance, types, rational process of decision making, problem solving techniques, improving decision making
- 1.12 Fundamental principles of healthcare institution and hospital management

Section (B)

Short Question	4 Question × 5 Marks = 20 Marks	40 Marks
Long Question	2 Question × 10 Marks = 20 Marks	

2. General Health Issues (25 Marks)

- 2.1 Present Constitution of Nepal (health and welfare issues)
- 2.2 International health agencies: role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
- 2.3 Medical ethics
- 2.4 Indigenous and traditional faith healing and health practices
- 2.5 Supervision, types and its usage in health sector
- 2.6 Monitoring and evaluation system in health Sector
- 2.7 Health management information system
- 2.8 Health insurance and financing in health care
- 2.9 Effects of environment in public health: air pollution, domestic pollution, noise pollution
- 2.10 Importance of water, sanitation and hygiene in public health

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- 2.11 Effects of disaster in public health: deforestation, landslide, flood, earthquake & fire
- 2.12 Health volunteers' involvement in health service delivery
- 2.13 Counseling: concept, type, importance and its application in health service delivery

3. Related Legislations (Policy, Act and Regulations) (15 Marks)

- 3.1 National Health Policy, 2076
- 3.2 Human Organ Transplantation (Regulation and Prohibition) Act, 2055 with amendment
- 3.3 Human Organ Transplantation Regulations, 2073
- 3.4 Guidelines on medical treatment of deprived citizens program, 2080
- 3.5 Human Organ Transplant Development Committee Personnel Administration Rules, 2069 (मानव अंग प्रत्यारोपण विकास समिति कर्मचारी प्रशासन नियमवाली, २०६९)
- 3.6 Human Organ Transplant Development Committee Formation Order, 2068 (मानव अंग प्रत्यारोपण विकास समिति गठन आदेश, २०६८)
- 3.7 Health Workers and Health Institutions Security Act, 2066 & Health Workers and Health Institutions Security Regulation, 2069
- 3.8 Health Insurance Act, 2074
- 3.9 Health Service Act, 2053
- 3.10 Public Health Service Act, 2075

Section (C)

Short Question	3 Question × 5 Marks = 15 Marks	35 Marks
Long Question	2 Question × 10 Marks = 20 Marks	

4. General Concept of Solid Organ Donation and Transplantation

- 4.1 Basic Concept of Transplant Science
 - 4.1.1 Transplant immunology
 - 4.1.2 Basic terminology : autologous graft, syngeneic graft, allogeneic graft, xenogeneic graft, alloantigen, alloreactive, immune rejection
 - 4.1.3 Types of graft rejection : hyper acute rejection, acute cellular rejection, acute antibody mediated rejection, chronic rejection
 - 4.1.4 Immunosuppressant drugs used in organ transplantation
 - 4.1.5 Evaluation of donor and recipient and management
 - 4.1.6 Organ preservation and procurement
 - 4.1.7 Role of immunological test in transplantation : Human leucocyte antigen (HLA), Donor specific antibodies (DSA), Panel reactive antibodies (PRA), Complement dependent cytotoxicity (CDC) cross match, flow cross match
 - 4.1.8 Complications among organ transplant recipients and management
- 4.2 Concepts of Organ Donation and Transplantation Process
 - 4.2.1 Demand vs. supply gap in transplantation
 - 4.2.2 Health promotion and prevention of organ failure
 - 4.2.3 Organ failure, organ donation, transplant etc
 - 4.2.4 Organ recovery process
 - 4.2.5 Organ donation process
 - 4.2.6 Brain death donation: definition, declaration & management

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- 4.2.7 Contraindication of transplantation in brain death donation
- 4.2.8 Hurdles in brain death donation program
- 4.2.9 Brain death, criteria for certifying brain death and tests to confirm diagnosis
- 4.2.10 Concept of circulatory death : donation after circulatory death (DCD), types, different from brain death donation
- 4.2.11 Allocation of Kidneys, Liver, Heart and Lungs in Deceased donor transplantation
- 4.2.12 Preservation and transportation of retrieved organs
- 4.3 History of organ transplantation in Nepal
- 4.4 Role, scope and importance of Shahid Dharmabhakta National Transplant Center in organ transplantation
- 4.5 Religion and culture in organ donation and transplantation

5. Ethical Issues in Organ Donation and Transplantation

- 5.1 Patient confidentiality and privacy legislation
- 5.2 Patient autonomy
- 5.3 Principles of informed consent and decision making
- 5.4 Next of kin designation
- 5.5 End of life decision making
- 5.6 Organ procurement for transplantation
- 5.7 Management and review of adverse events
- 5.8 Communication with families in crisis

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**Paper II: Technical subject
(Pulmonology)**

Section A

Short Question	3 Question × 10 Marks = 30 Marks	50 Marks
Long Question	1 Question × 20 Marks = 20 Marks	

1. Pneumonia and Obstructive lung disease (10 marks)

- 1.1 Pneumonia
 - 1.1.1 Epidemiology
 - 1.1.2 Causative agents
 - 1.1.3 Signs and symptoms
 - 1.1.4 Investigations and severity scoring
 - 1.1.5 Management plan
 - 1.1.6 Complications
 - 1.1.7 Types of pneumonias
- 1.2 Obstructive Airway Disease
- 1.3 Chronic Obstructive Pulmonary Disease (COPD)
- 1.4 General principles, risk factors, signs and symptoms, investigations and management
 - 1.4.1 Evaluation and management of acute exacerbation of COPD
 - 1.4.2 Smoking Cessation
 - 1.4.3 Pulmonary Rehabilitation
- 1.5 Bronchial Asthma
 - 1.5.1 General principles, risk factors, signs and symptoms, investigations and management
 - 1.5.2 Evaluation and management of acute severe asthma
 - 1.5.3 Allergic Bronchopulmonary Aspergillosis
- 1.6 Bronchiectasis
 - 1.6.1 General principles, etiology, risk factors, signs and symptoms, investigations and management
 - 1.6.2 Evaluation and management of Cystic Fibrosis

2. Tuberculosis (TB) (20 marks)

- 2.1 Etiopathology
- 2.2 Pulmonary and Extra pulmonary TB
- 2.3 Clinical presentation
- 2.4 Investigations
- 2.5 Management/Treatment regimens
- 2.6 Resistance TB
- 2.7 Anti tubercular drugs/side effects/management
- 2.8 National Tuberculosis Program in Nepal

3. Interstitial Lung Diseases (ILD) (10 marks)

- 3.1 General principles - classification, sign and symptoms, clinical and laboratory evaluation and management of interstitial pneumonias
- 3.2 Evaluation, classification and management of idiopathic interstitial pneumonias

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- 3.3 Evaluation, classification and management of connective tissue disease associated ILD
- 3.4 Evaluation, classification and management of rareILDs including cysticILD's
- 3.5 Occupational lung diseases - Evaluation, classification and management
- 3.6 Malignant Diseases/ Lung Cancer
 - 3.6.1 Lung Cancer - Types, signs and symptoms, investigations, staging, treatment modalities and Rehabilitation
 - 3.6.2 Evaluation and management of Solitary Pulmonary Nodule
 - 3.6.3 Other rare benign and malignant lung and airway tumors
 - 3.6.4 Evaluation and management of secondaries in lung
 - 3.6.5 Evaluation and management of mediastinal lesion – benign and malignant
- 3.7 Pleural diseases
 - 3.7.1 Pleural Effusion/Empyema
 - 3.7.2 Pneumothorax
 - 3.7.3 Malignant pleural effusion
 - 3.7.4 Pleural tumors – benign and malignant
- 3.8 Pulmonary Vascular Disorders
 - 3.8.1 Evaluation and management of venous thromboembolism
 - 3.8.2 Classification, evaluation and management of pulmonary hypertension
 - 3.8.3 Evaluation and management of pulmonary vasculitis

4. Evaluation and Management of common respiratory symptoms (10 marks)

- 4.1 Cough
- 4.2 Breathlessness
- 4.3 Hemoptysis
- 4.4 Chest pain
- 4.5 Stridor

Section B

Short Question	3 Question × 10 Marks = 30 Marks	50 Marks
Long Question	1 Question × 20 Marks = 20 Marks	

5. Critical Care and sleep medicine (10 marks)

5.1 Critical Care

- 5.1.1 Types of Respiratory Failure and its management
- 5.1.2 Cardio pulmonary Resuscitation
- 5.1.3 Endotracheal intubation
- 5.1.4 Invasive mechanical ventilation and management, including titration of FiO₂, PEEP, application and adjustment of ventilator mode, weaning and extubation
- 5.1.5 Arterial Blood Gase (ABG) interpretation and Management
- 5.1.6 Noninvasive ventilation
- 5.1.7 Sedation, Analgesia protocols in ICU, Antibiotic Stewardship Prevention and management of Ventilator Associated Pneumonia (VAP), Deep Vein Thrombosis (DVT)

5.2 Sleep Medicine

- 5.2.1 General principles - Normal Sleep physiology, stages, interpretation of polysomnography

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- 5.2.2 Obstructive sleep Apnea - risk factors, comorbidities, evaluation and management
- 5.2.3 Obesity Hypoventilation Syndrome - evaluation and management
- 5.2.4 Sleep related movement disorders
- 5.2.5 Cheyne- stokes breathing, management of morbid obesity, Multiple sleep latency test

6. Basic Science, Radiology and Pathology in Respiratory Diseases (10 marks)

- 6.1 Pulmonary physiology including principles and interpretation of pulmonary function tests
 - 6.1.1 Ultrasonography for respiratory diseases
 - 6.1.2 Principles and interpretation of Chest radiograph and CT scan
 - 6.1.3 Histology and cytopathology in respiratory diseases – malignant and Granulomatous conditions
- 6.2 Pulmonary involvement in other systemic diseases
- 6.3 Intervention and diagnostic procedures in respiratory diseases
 - 6.3.1 Bronchoscopy - indications, preparation, procedure and complications
 - 6.3.2 Medical Thoracoscopy - indications, preparation, procedure and complications
 - 6.3.3 Principles of End bronchial Ultrasound and rigid bronchoscopy
- 6.4 Principles of surgical management in respiratory diseases
 - 6.4.1 Principles of thoracic surgery in respiratory diseases
 - 6.4.2 Principles of Lung Transplant
 - 6.4.3 Preoperative respiratory evaluation

7. Pulmonology and organ transplant (30 marks)

- 7.1 Basic concept and indication of organ donation and transplant
- 7.2 Concept of organ retrieval and transplantation
- 7.3 Lung and heart transplantation- indication and contraindication
- 7.4 Pulmonary assessment and relevant investigation of donor and recipient in kidney and liver transplant
- 7.5 Transplant immunology-concept of rejection, Human Leucocyte Antigen (HLA), Panel Reactive Antibodies (PRA), Donor Specific Antibodies (DSA), Complement dependent cytotoxicity (CDC) cross match test
- 7.6 Transplant pharmacology-antimicrobial, immunosuppressant