

निजामती कर्मचारी अस्पताल
प्राविधिक सेवा, मेडिसिन समूह, क्लिनिकल हेमाटोलोजी उपसमूह, रजिष्ट्रार पद, आठौं तहको खुला तथा आन्तरिक
प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :- लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

१. प्रथम चरण (First Phase): परीक्षा योजना (Examination Scheme)

Paper	Subject		Marks	Full Marks	Pass Marks	No. Questions & Weightage	Time
I	General Subject	Part I: Management	50	100	40	6 × 5 = 30 (Short answer) 2 × 10 = 20 (Long answer)	3.00 hrs
		Part II: General Health Issues	50			6 × 5 = 30 (Short answer) 2 × 10 = 20 (Long answer)	
II	Technical Subject			100	40	4 × 15 = 60 (Critical Analysis) 2 × 20 = 40 (Problem Solving)	3.00 hrs

२. द्वितीय चरण (Second Phase)

Subject	Full Marks	Examination System
Interview	30	Oral

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- अस्पतालको प्राविधिक सेवा अन्तर्गतका सबै समूह/सबै उपसमूहहरूको लागि प्रथमपत्रको पाठ्यक्रमको विषयवस्तु एउटै हुनेछ । तर द्वितीयपत्र Technical Subject को पाठ्यक्रम समूह/उपसमूह अनुरूप फरक फरक हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ । परीक्षामा सोधिने **प्रश्नसंख्या र अङ्कभार** यथासम्भव सम्बन्धित पत्र, विषयमा दिईए अनुसार हुनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- वस्तुगत बहुवैकल्पिक हुने परीक्षामा परीक्षार्थीले उत्तर लेख्दा अंग्रेजी ठूलो अक्षर (Capital letter) A, B, C, D मा लेख्नुपर्नेछ । सानो अक्षर (Small letter) a, b, c, d लेखेको वा अन्य कुनै सङ्केत गरेको भए सबै उत्तरपुस्तिका रद्द हुनेछ ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नहरूको हकमा 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 सकिने छ ।
- विषयगत प्रश्नमा प्रत्येक पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरू परीक्षाको मितिभन्दा 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 लागु मिति : आ.व. २०७९/०८०

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Paper I: General Subject
Part I: Management
(6 × 5) + (2 × 10) = 50 Marks

1. Management

- 1.1. Health care management system in Nepal and other parts of the world
- 1.2. Fundamental principles of healthcare institution and hospital management.
- 1.3. Effective hospital management principles
- 1.4. Purpose of medical and non-medical data and records
- 1.5. Ethics and responsibility of management
- 1.6. Concept of management and its application in health care including hospital
 - 1.7.1 Management: Concept, principles, functions, scope and role, level and skills of manager
 - 1.7.2 Planning: Concept, principles, nature, types, instruments and steps
 - 1.7.3 Leadership: Concept, function, leadership styles, leadership and management
 - 1.7.4 Coordination: Concept, types, techniques of effective coordination
 - 1.7.5 Communication and counselling: Concept, communication processes and barrier to effective communication, techniques for improving communication
 - 1.7.6 Decision making: Importance, types, rational process of decision making, problem solving techniques, improving decision making
 - 1.7.7 Participative management: Concept, advantage and disadvantage, techniques of participation
 - 1.7.8 Time management: Concept, essential factors and strategies for effective time management
 - 1.7.9 Conflict management: Concept, approaches to conflict, levels of conflict, causes of conflict and strategies for conflict management
 - 1.7.10 Stress management: Concept, causes and sources of stress, techniques of stress management
 - 1.7.11 Change management: Concept, sources of organizational change, resistance to change, management of resistance to change
 - 1.7.12 Appreciative inquiry: Concept, basic principle and management
 - 1.7.13 Human resource management: Concept, functions and different aspects
 - 1.7.14 Health manpower recruitment and development
 - 1.7.15 Financial management: Concept, approaches, budget formulation and implementation, Auditing and topics related to fiscal administration

Part II: General Health Issues
(6 × 5) + (2 × 10) = 50 Marks

2. General Health Issues

- 2.1. Present constitution of federal republic of Nepal (including health and welfare issues)
- 2.2. Organizational structure of Ministry of Health at national/federal, regional/state, district (if applicable), municipal and village council level
- 2.3. Professional council and related regulations
- 2.4. National Health Policy
- 2.5. Health Service Act and Regulation
- 2.6. Second Long term health plan
- 2.7. Health Management Information System, forms, indicators, annual reports
- 2.8. Human Development Indices, Sustainable Development Goals
- 2.9. Health volunteers in the national health system, its rationale, use and effectiveness

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- 2.10. Local governance and community participation in health service delivery
- 2.11. Health Insurance and financing in health care
- 2.12. Alternative health care system: Ayurveda, homeopathy, Unani, Chinese etc.
- 2.13. Indigenous and traditional faith health and health practices
- 2.14. International Health Agencies: Roles and responsibilities of WHO, UNICEF, UNFPA, Inter-agency relationships, Government-agency coordination: Joint Annual Review meeting
- 2.15. Supervision, types and its usage in health sector
- 2.16. Monitoring and evaluation system in health sector
- 2.17. National Health Training Centre
- 2.18. National and International Disaster Plan, Coordination
- 2.19. General introduction of Civil Service Hospital and its Bylaws

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Paper II : Technical Subject
Section (A) – 50 Marks

1. **Basic physiology of Haemopoetic system**
2. **Erythrocyte**
 - 2.1 Clinical manifestations & classification of erythrocyte disorders
 - 2.2 Aplastic Anaemia
 - 2.3 Pure red cell aplasia
 - 2.4 Anemia of chronic disease
 - 2.5 Paroxysmal Nocturnal hemoglobinuria (PNH)
 - 2.6 Iron deficiency anemia and iron overload
 - 2.7 Disorders of iron metabolism
 - 2.8 Thalassemias
 - 2.9 Sick cell anemia
 - 2.10 Anemia of chronic disease, renal disease, endocrine disease,
 - 2.11 Megaloblastic anemias
 - 2.12 Haemolytic anemias
 - 2.12.1 Hereditary spherocytosis
 - 2.12.2 Hereditary elliptocytosis and related disorders
 - 2.12.3 Hereditary stomatocytosis
 - 2.12.4 Paroxysmal nocturnal hemoglobinuria
 - 2.12.5 Enzymatic defects
 - 2.12.6 Hemolytic anemias resulting from extracellular factors- immune haemolytic anemias, resulting from physical injury to RBCs, resulting from chemical & physical agents, resulting from infections & microorganisms etc
 - 2.13 Haemoglobinopathies
 - 2.13.1 Sick cell disease/Sickle cell trait
 - 2.13.2 Hereditary methemoglobinemia
 - 2.13.3 Thalassemia syndromes
 - 2.14 Porphyria: Hematological aspects
 - 2.15 Polycythaemia (erythrocytosis)
3. **Pancytopenias**
 - 3.1 Inherited Bone marrow failure syndromes with pancytopenia
 - 3.2 Acquired pancytopenias
 - 3.3 Marrow infiltration disorders
4. **Disorders of different components of white blood cells**
 - 4.1 Neutrophil: Classification & clinical manifestations of neutrophil disorders, Neutropenia, Neutrophilia, Leukemoid reaction, Disorders of neutrophil function
 - 4.2 Eosinophil: Eosinophilia, Hypereosinophilic syndrome, Eosinophilic granulomatosis and polyangiitis, Other disorders of eosinophils
 - 4.3 Basophil: Basophilia, Other disorders of basophils and mast cells
 - 4.4 Lymphocyte: Classification & manifestations of lymphocyte & monocyte disorders, Lymphopenias, Lymphocytosis, Immunodeficiency disorders, Hematological aspects of HIV infection, Mononucleosis syndromes
 - 4.5 Monocyte: Classification & clinical manifestations of disorders of monocytes and macrophages, Monocytosis & monocytopenia, Inflammatory & malignant histiocytosis

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5. **Splenomegaly, Hyposplenism, Hypersplenism, Splenic trauma and Splenectomy**
6. **Hematopoietic Cell Transplantation**
 - 6.1 Autologous Stem cell transplant
 - 6.2 Allogeneic Stem cell transplant
7. **Transfusion medicine**
 - 7.1 Red blood cell transfusions and erythropoietin therapy
 - 7.2 Platelet transfusions
 - 7.3 Neutrophil (granulocyte) transfusions
 - 7.4 Plasma transfusions
 - 7.5 Risks of blood transfusions

Section (B) - 50 Marks

8. **Hemorrhagic and thrombotic diseases**
 - 8.1 Classification & clinical manifestations of disorders of hemostasis
 - 8.2 Clinical and laboratory evaluation of hemostasis
 - 8.3 Hereditary clotting factor deficiencies (bleeding disorders)
 - 8.3.1 Factor VIII or Factor IX deficiency
 - 8.3.2 Factor XI deficiency
 - 8.3.3 Factor VII deficiency
 - 8.3.4 Factor X deficiency
 - 8.3.5 Prothrombin (Factor II) deficiency
 - 8.3.6 Factor V deficiency
 - 8.3.7 Combined deficiency of Factor V and VIII
 - 8.3.8 Fibrinogen (Factor I) deficiency
 - 8.3.9 Factor XIII deficiency
 - 8.4 von Willebrand disease
 - 8.5 Thrombotic disorders: DVT, Pulmonary & other thromboembolisms
 - 8.6 Essential thrombocythemia & thrombocytosis
 - 8.7 Acquired inhibitors of coagulation
 - 8.8 Disseminated intravascular coagulation
 - 8.9 Antiphospholipid syndrome
 - 8.10 Platelet and blood vessel disorders
 - 8.10.1 Autoimmune thrombocytopenic purpura
 - 8.10.2 Drug induced thrombocytopenia
 - 8.10.3 Nonimmune platelet destruction
 - 8.10.4 Thrombotic thrombocytopenic purpura
 - 8.10.5 Platelet function disorders
 - 8.10.6 Congenital and acquired disorders of platelet function
9. **Malignant Lymphoid diseases**
 - 9.1 Classification of malignant lymphoid disorders
 - 9.2 Acute lymphoblastic leukemia (ALL)
 - 9.3 Hodgkin's Lymphoma
 - 9.4 Chronic Lymphoblastic Lymphoma
 - 9.5 Marginal Zone Lymphoma
 - 9.6 Follicular Lymphoma

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- 9.7 Mantle Cell Lymphoma
 - 9.8 DLBCL
 - 9.9 Burkitt's lymphoma
 - 9.10 Primary CNS lymphoma
 - 9.11 T cell and NK cell lymphoma
 - 9.12 MGUS
 - 9.13 Multiple myeloma
 - 9.14 Light chain amyloidosis
 - 9.15 Waldenstrom macroglobulinemia
 - 9.16 Large granular lymphocytic leukemia
 - 9.17 Hairy cell leukemia
 - 9.18 Other malignant diseases: Amyloidosis, Heavy chain diseases
10. **Malignant myeloid diseases**
- 10.1 Classification & clinical manifestations of clonal myeloid disorders
 - 10.2 Polycythemia Vera
 - 10.3 Essential Thrombosis
 - 10.4 Primary myelofibrosis
 - 10.5 Myelodysplastic Syndrome
 - 10.6 Chronic myeloid Leukemia
 - 10.7 Acute Myeloid Leukemia
11. **Therapeutic principles in hematology**
- 11.1 Pharmacology & toxicity of antineoplastic drugs
 - 11.2 Treatment of infections in immunocompromised host
 - 11.3 Principles of antithrombotic therapy
 - 11.4 Principles of immune cell therapy
 - 11.5 Principles of vaccine therapy
 - 11.6 Principles of therapeutic apheresis
 - 11.7 Pain management
12. **Hematological diseases during pregnancy**
13. **Hematological diseases during elderly**