

वी.पी. कोइराला मेमोरियल क्यान्सर अस्पताल
प्राविधिक (स्वास्थ्य) सेवा, मेडिकल (एलाइड हेल्थ) समुह, मेडिकल ल्याब टेक्नोलोजी उपसमुह, अधिकृत सातौं
तह, टेक्नोलोजिष्ट पदको खुला र 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

परीक्षा योजना (Examination Scheme)

प्रथम चरण (First Phase) : लिखित परीक्षा

Paper	Subject	Full Marks	Pass Marks	No. Questions & Weightage	Time Allowed
I	Technical Subject & Organizational Knowledge	100	40	100× 1= 100 (Objective Multiple Choice Questions)	1.15 hrs
II		100	40	4 × 5 = 20 8 × 10 = 80 (Subjective Descriptive Type)	3.00 hrs

द्वितीय चरण (Second Phase)

Subject	Full Marks	Examination
Interview	30	Oral

द्रष्टव्य :

- यो पाठ्यक्रमको योजनालाई प्रथम चरण र द्वितीय चरण गरी दुई भागमा विभाजन गरिएको छ ।
- प्रथम र द्वितीय पत्रको पत्रको विषयवस्तु एउटै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कटौत गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कटौत 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 ।
- परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र /विषयमा दिइए अनुसार हुनेछ ।
- परीक्षामा परीक्षार्थीले मोबाइल वा यस्तै प्रकारका विद्युतीय उपकरण परीक्षा हलमा लैजान पाइने छैन ।
- विषयगत प्रश्न हुने पत्रका हकमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तरपुस्तिकामा लेख्नुपर्ने छ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्भन्नु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :- २०७८/०९/३१

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**Paper I & II : - Technical Subject & Organizational Knowledge
Section (A): 50% Marks**

1. Haematology

- 1.1 Cleaning of glasswares and safety precaution in the laboratory
- 1.2 Collection and preservation of different samples for the laboratory
- 1.3 Preparation of chemicals and different stains for the Hematological tests
- 1.4 Quality control in the laboratory
- 1.5 Formation and development of erythrocytes, leucocytes, thrombocytes
- 1.6 Principle and clinical procedure for:
 - 1.6.1 Hemoglobin estimation and it's standard curve calibration
 - 1.6.2 Total count of W.B.C., R.B.C., Platelets and reticulocytes
 - 1.6.3 E.S.R., B.T., C.T., and RBC indices
 - 1.6.4 Coomb's tests
 - 1.6.5 Blood banking & Transfusion
 - 1.6.6 Coagulation profile (mechanism, disorder & investigations)
 - 1.6.7 LE cell preparation
 - 1.6.8 Tissue parasite
 - 1.6.9 Absolutes cell count
 - 1.6.10 The composition and function of blood
 - 1.6.11 Classification of leukemia
- 1.7 Identify different types of leukemia and their morphological features

2. Microbiology

- 2.1 Bacteriology
 - 2.1.1 Classification of medically important bacteria
 - 2.1.2 Characteristics of Microorganism: Prokaryotes, Eukaryotes, Viruses
 - 2.1.3 Different methods of sterilization and disinfections
 - 2.1.4 Preparation of different media and ingredients uses and interpretation
 - 2.1.5 Preparation of chemicals and stains
 - 2.1.6 Cultural procedure of different samples aerobically
 - 2.1.7 Identification of bacteria and confirmative tests serologically and biochemically
 - 2.1.8 Different staining methods of bacteria and their principles
 - 2.1.9 T.B. Bacteriology and skin scraping for A.F.B
 - 2.1.10 Quality control in Bacteriology Laboratory
 - 2.1.11 The universal precaution in microbiology laboratory and safe west disposal of infected materials
- 2.2 Virology
 - 2.2.1 General properties of virus comparing with bacteria, terminology used in virology and basic laboratory procedure used in the diagnosis of viral disease
 - 2.2.2 Principle of viral isolation, embryonated egg and tissue culture
 - 2.2.3 Immunology of viral infection
- 2.3 Parasitology
 - 2.3.1 Classification of human and vectors
 - 2.3.2 General characteristics of Protozoa, Helminthes, trematodes/ cestodes
 - 2.3.3 Methods of collection, transportation and storage of different types of specimens

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- 2.3.4 Methods of identification parasites from different types of clinical materials
- 2.4 Mycology
 - 2.4.1 Terminologies used in mycology sample collection for fungal infection (skin scarping, nails and hair) and method of wet preparation
 - 2.4.2 Examination and identification by different method and culture
- 2.5 Immunology
 - 2.5.1 Immune system and infectious diseases
 - 2.5.2 Structure, types and function of Immunoglobulin
 - 2.5.3 Toxin/ antitoxin and antibody/antigen reaction; and their various types
 - 2.5.4 Principle and procedure for the estimation of:
 - 2.5.4.1 V.D.R.L., (RPR)
 - 2.5.4.2 A.S.O.
 - 2.5.4.3 C.R.P.
 - 2.5.4.4 Rheumatoid factor
 - 2.5.4.5 Blood Grouping
 - 2.5.4.6 Cancer Marker
 - 2.5.4.7 Agglutination Reaction
 - 2.5.4.8 Precipitation Reaction
 - 2.5.4.9 Flocculation Reaction
 - 2.5.4.10 ELISA
 - 2.5.4.11 Haemagglutination Reaction

Section (B): 40% Marks

- 3. **Biochemistry**
 - 3.1 Molecular weight and equivalent weight
 - 3.2 Preparation of normal and molar solution
 - 3.3 Colorimeter/spectrophotometer
 - 3.4 Principle and procedure of different methods for the estimation of biochemical tests
 - 3.4.1 Sugar, Urea, Creatinine, Uric Acid, Billirubin, GPT, GOT, ALP, Lipid profile, Cardic profile, Renal function test, Liver Function Test, Clearance study, Amylase & Electrolytes
 - 3.4.2 Cavity fluids examination
 - 3.4.3 C.S.F. examination
 - 3.4.4 24 hours Urine Protein
 - 3.5 Simple theory of light waves, function of filters Beers and Lamberts law, absorbance and percent transmission
 - 3.6 Tumor Marker
 - 3.6.1 Estimation and interpretation of AFP, B-hCG, CEA, CA-125, CA 19-9, CA 15-3, PSA
 - 3.7 Recent advances in clinical biochemistry
 - 3.8 Management of Biochemistry Laboratory
- 4. **Histology/Cytology**
 - 4.1 Different types of fixatives and their uses
 - 4.2 Methods of decalcification
 - 4.3 Methods of processing of tissues to prepare paraffin block tissue
 - 4.4 Methods of cutting section from the paraffin block tissue and staining Procedure
 - 4.5 Principle and application of immunohistochemistry

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- 4.6 Immunofluorescence technique
- 4.7 Electron Microscopic and its applications
- 4.8 Safety measures and quality assurance in Histopathology laboratory
- 4.9 Uses of Cytogenetics, Flowcytometry, and Polarized microscopy in cytological study

Section (C): 10 % Marks

5. Concept of management

- 5.1 Management: concept, scope, functions, principles, and its practices
- 5.2 Hospital Management : concept, scope, function, principle and its practices
- 5.3 Communication skills, problem solving and decision making
- 5.4 Planning, organizing, monitoring and evaluation in health sector
- 5.5 Participative management
- 5.6 Social justice and social security system in Nepal
- 5.7 Positive attitude and self-development
- 5.8 Demographic characteristic of Nepal

6. Organizational Knowledge and General Health Issues

- 6.1 B.P.Koirala Memorial Cancer Hospital : History, organizational structure, functions, roles, services, problems and challenges
- 6.2 National Health Policy
- 6.3 B.P.Koirala Memorial Cancer Hospital related act and regulations
- 6.4 Health Service Act, 2053 and Health Service Regulation, 2055
- 6.5 Professional council related acts and regulations
- 6.6 Professional and medical ethics