नेपाल स्वास्थ्य सेवा, मेडिकल ल्याव टेक्नोलीजी समूहको सातौं तहको प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

लिखित परीक्षा (Written Examination)

विषय	पूर्णाङ्क	उर्तीर्णाङ्क	परिक्षा प्रणाली		प्रश्न संख्या × अंक	समय
मेडिकल ल्याव टेक्नोलोजी	५०	२०	विषयगत (Subjective)	छोटो उत्तर (Short Answer) लामो उत्तर (Short Answer)	८ प्रश्न × ५ अंक १ प्रश्न × १०अंक	१ घण्टा ३० मिनेट

मेडिकल ल्याव टेक्नोलीजी

Section A

1. Hematology

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 Foetal haemoglobin estimation
- 1.6.5 Coomb's tests
- 1.6.6 Blood banking & Transfusion
- 1.6.7 Coagulation profile (mechanism, disorder & investigations)
- 1.6.8 LE cell preparation
- 1.6.9 Tissue parasite
- 1.6.10 Absolutes cell count

1.7 Characteristics of Anemia, Leukaemia, Polycythemia, Leukamoid reaction, Thalassaemia & Haemoglobinopathies
1.8 Principles and procedure of Osmotic fragility tests and cyto chemical stains
1.9 Principle and procedure of G6PD, Hemoglobin electrophoresis
1.10 Preparation of reagents for special haematological investigation
1.11 Waster Disposal and Total Quality Management

Section B

2. Microbiology

2.1 Bacteriology.
- 2.1.1 classification of medically improtant bacteria
- 2.1.2 Characteristics of Microorganism: Prokaryotes, Eukaryotes, Viruses
- 2.1.3 Bacterial growth and nutritional requirements, uptake of nutrients, growth phages and sporulation
- 2.1.4 Antimicrobial drugs and their mode of actions with reference to cell wall, cell membrane, Nucleic acid and protein synthesis

2.1.5 Different methods of sterilization and disinfections
2.1.6 Preparation of different media and ingredients uses and interpretation
2.1.7 Preparation of chemicals and stains
2.1.8 Cultural procedure of different samples aerobically and anaerobically
2.1.9 Identification of bacteria and confirmative tests serologically and biochemically
2.1.10 Different staining methods of bacteria and their principles
2.1.11 T.B Bactriology and skin scraping for A.F.B
2.1.12 Water bacteriology
2.1.13 C.S.F. and cavity fluids for culture

2.2 Virology
2.2.1 Classification of medically important viruses and mode of infection
2.2.2 Characteristic of viruses, nature of viruses, viral structure and replication
2.2.3 Definition of R.N.A. and D.N.A. viruses
2.2.4 Principle and methods of serological prcedure for HCV, HIV, HBsAg and HEv etc

2.3 Parasitology
2.3.1 Classification of medically important
2.3.1.1 Protozoal parasites
2.3.1.2 Helminthic parasites
2.3.1.3 Blood parasites
2.3.1.4 Semen analysis
2.3.2 Methods of identification of different parasites from stool samples by
2.3.2.1 Wet preparation
2.3.2.2 Concentration methods
2.3.2.3 Cultural methods
2.3.3 Method of identification of blood parasites
2.3.4 Routine Examination and special test in Urine

2.4 Mycology
2.4.1 Identification of superficial, deep & systemic mycosis
2.4.2 Opportunistic mycosis
2.4.3 Examination and identification by different method and culture

2.5 Immunology
2.5.1 Principle and procedure for the estimation of:
2.5.1.1 V.D.R.L.,(RPR)
2.5.1.2 T.P.H.A.,
2.5.1.3 A.S.O.
2.5.1.4 C.R.P.
2.5.1.5 Rheumatoid factor
2.5.1.6 Pregnancy test
2.5.1.7 TORCH Range
2.5.1.8 Cancer Marker
2.5.1.9 Agglutination Reaction
2.5.1.10 Precipation Reaction
2.5.1.11 Flocculation Reaction
2.5.1.12 ELISA
2.5.1.13 Haemagglutination Reaction

2.6 Waster Disposal and Total Quality Management

निर्देशक

Section C

3 Biochemistry

- 3.1 Preparation of normal and molar solution
- 3.2 Preparation of different reagents required for biochemical test
- 3.3 Colorimeter and spectro phometer
- 3.4 Flame Photometry
- 3.5 Carbohydrate metabolism:
  - 3.5.1 Glycolysis
  - 3.5.2 Glycogenesis
  - 3.5.3 Glycogenolysis
  - 3.5.4 Pentose phosphate pathway
  - 3.5.5 Kreb's cycle
  - 3.5.6 Gluconeogenesis
- 3.6 Protein metabolism
  - 3.6.1 Transamination
  - 3.6.2 Deamination
  - 3.6.3 Urea cycle
  - 3.6.4 Nitrogen balance
  - 3.6.5 Creatinine and creatinine formation
- 3.7 Lipid metabolism
  - 3.7.1 '-oxidation
  - 3.7.2 æ-oxidation
  - 3.7.3 ¬-oxidation
  - 3.7.4 Ketone bodies formation and their utilization
  - 3.7.5 Ketosis
  - 3.7.6 Cholesterol and triglucerides synthesis
- 3.8 Hormone
  - 3.8.1 Introduction
  - 3.8.2 Types
  - 3.8.3 Origin
  - 3.8.4 Definition
  - 3.8.5 Classification
  - 3.8.6 Regulation
  - 3.8.7 Measurement by various methods including RIA, EIA
- 3.9 Principle and procedure of different methods for the estimation of biochemical tests
  - 3.9.1 Sugar, Urea, Cratinine, Uric Acid, Billirubin, GPT, GOT, ALP, Lipid profile, Cardic profile,Renal function test, Liver Function Test, Cleareance study, Amylase & Electrolytes
  - 3.9.2 Cavity fluids examination
  - 3.9.3 C.S.F. examination
  - 3.9.4 24 hours Urine Protein
- 3.10 Waster Disposal and Total Quality Management

Section D

4. Histology/cytology

- 4.1 Preparation of 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 Description of different types of microtome, their principles and methods of cutting section from the paraffin block tissue

4.5 Preparation of routiine and special histological and cytological stains and staining procedure

4.6 Principles and methods of staining and mounting the tissue section on the glass slides

4.7 Waster Disposal and Total Quality Management

पाठ्यक्रमका एकाईहरुबाट सोधिने प्रश्न संख्या निम्नानुसार हुनेछ :

छोटो प्रश्न

खण्ड	A	B	C	D
एकाई	1	2	3	4
प्रश्न संख्या	2	2	2	2

लामो प्रश्न

खण्ड	A,B,C,D
एकाई	सबै मध्येबाट
प्रश्न संख्या	1

निमित्त निर्देशक