सूर्यवनिायक नगरपालिका

स्वास्थ्य सेवा, मेडिकल ल्याव टेक्नोलोजी समूह, मेडिकल ल्याब टेक्नोलोजिस्ट, सातौँ तहको प्रतियोगितात्मक परीक्षाको पाठयक्रम

पाठयक्रमको रुपरेखा :– यस पाठयक्रमको आधारमा निम्नानुसार चरणमा परीक्षा लिइने छ :

प्रथम चरण :– लिखित परीक्षा पूर्णाङ्क :– १००

द्वितीय चरण :– अन्तर्वार्ता पूर्णाङ्क :– २०

प्रथम चरण – लिखित परीक्षा योजना (Written Examination Scheme)

पत्र/विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली	प्रश्न संख्या **X** अङ्कभार	समय
सेवा सम्बन्धी	१००	४०	वस्तुगत बहुवैकल्पिक (Multiple Choice)	५० प्रश्न X २अङ्क = १००	४५ मिनेट

द्वितीय चरण

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	२०	मौखिक

द्रष्टव्य :

१. यो पाठयक्रम योजनालाई प्रथम चरण (लिखित परीक्षा) तथा द्वितीय चरण (अन्तर्वार्ता) गरी दुई भागमा विभाजन गरिएको छ ।

२. प्रश्नपत्र अंग्रेजी भाषामा हुनेछ ।

३. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।

४. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत अङ्क कट्टा गरिने छैन ।

५. परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।

६. परीक्षामा यथासम्भव सबै इकाईबाट प्रश्न सोधिने छ ।

७. नगरपालकिाबाट संचालन हुने परीक्षामा परीक्षार्थीले मोबाइल वा यस्तै प्रकारका विद्युतीय उपकरण परीक्षा हलमा लैजान पाइने छैन ।

८. यस पाठयक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठयक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाका मिति भन्दा ३ महिना अगाडि (संशोधन भएको वा संशोधन भई हटाईएको वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।

९. लिखित परीक्षामा छनौट भएका उम्मेदवारहरुलाई मात्र अन्तर्वार्तामा सम्मिलित गराइनेछ ।

१०. लिखित परीक्षा र अन्तर्वार्ताको कुल अङ्क योगका आधारमा अन्तिम परीक्षाफल प्रकाशित गरिनेछ ।

विषय :– मेडिकल ल्याव टेक्नोलोजी

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

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 **(Subsection 2.2& 2.3=10%)**
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 (Subsection 2.4& 2.5=10%)
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

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

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

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