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Admin/Rec./DR /Group 'B' & 'C' /2018/NGP/169 Dated: 10.07.2018

NOTICE REGARDING RECRUITMENT OF VARIOUS GROUP 'B' & GROUP 'C' POSTS ON DIRECT RECRUITMENT BASIS IN AIIMS, NAGPUR

In reference to advertisement No. Admin/Rec./DR /Group 'B' & 'C' /2018/ NGP/530, Dated 14.05.2018 for recruitment of following Group 'B' and Group 'C' posts on direct recruitment basis in AIIMS Nagpur:

1. Technical Assistant/ Technician
2. Lab Technician
3. Lab Attendant Gr. II

Syllabus and Scheme of Examination for above said posts is mentioned in Annexure-I

Distribution of questions mentioned in the Annexure-I is indicative; there may be slight variation in distribution of questions.

Candidates are advised to visit AIIMS Raipur & AIIMS Nagpur website regularly for any updates related to the subject examination.

Deputy Director (Admin)
AIIMS, Raipur (C.G.)

Annexure-I

S. No	Post Name	Essential Qualification	Proposed Scheme	No. of Questions	Total Marks	Time Duration	Indicative Syllabus
1.	**Technical Assistant/ Technician**	**Essential:** i. B. Sc. In Medical Lab Technology or equivalent. ii. 5 Years' experience in the concerned field **Or** i. Diploma in Medical Lab Technology or equivalent. ii. 8 Years' experience in the concerned field **Or** i. For posts in Anesthesia/ Operation Theatre, B.Sc. in OT techniques or equivalent with 5 years' experience in concerned field. ii 10+2 with science with Diploma in OT techniques or equivalent with 8 years' experience in concerned field	(A) For post of Technical Assistant/ Technician: Subject knowledge of concerned post.	60	60	60 Minutes	As mentioned in Annexure-I

S. No	Post Name	Essential Qualification	Proposed Scheme	No. of Questions	Total Marks	Time Duration	Indicative Syllabus
2.	**Lab Attendant Gr. II**	**Essential Qualification:** **1) Essential:** i. 10+2 with science. ii. Diploma in Medical Lab Technology. **2) Desirable:** Experience 2 years in relevant field.	(A) Subject knowledge of concerned post.	60	60	60 Minutes	As mentioned in Annexure-I

S. No	Post Name	Essential Qualification	Proposed Scheme	No. of Questions	Total Marks	Time Duration	Indicative Syllabus
3.	**Lab Technician**	**Essential Qualification:** **1) Essential:** iii. 10+2 with science. iv. Diploma in Medical Lab Technology. **2) Desirable:** B. Sc. In Medical Lab Technology.	(A) Subject knowledge of concerned post.	60	60	60 Minutes	As mentioned in Annexure-I

(These concepts should be dealt in brief, focussing on clinical relevance wherever applicable.)

PATHOLOGY

IMMUNO HAEMATOLOGY & BLOOD BANKING

Introduction, Human blood group antigens, ABO blood group system and incompatibility, Rh blood group system and incompatibility , Technique of grouping and cross matching , Commb's test, Direct, Indirect , Blood Transfusion Procedure, Complication of blood transfusion, Blood Collection, Selection and Screening of donors., Collection of blood, Storage of blood, Cell separator and transfusion of various components of blood like Plasma and Platelet Separation , Organization, Operation and Administration of Blood Bank and anticoagulants.

CLINICAL PATHOLOGY & HAEMATOLOGY

Urine analysis, Physical, chemical, microscopic., Routine tests viz. Sugar, Albumin and Phosphates., Other tests viz. Bile salt, Bile pigment, Urobilin Ketone bodies, Chyle, Specific gravity, Total protein (Esbachs) etc., Faecal analysis for occult blood examination., Preparation of Seminal Fluid for analysis. , Preparation of aspiration fluids. , Ascitic fluid, Pleural fluid ,CSF , Others, Introduction to haematology. , Collection of blood sample and anticoagulants., Red Cell Counts, Haemocytometer and procedure for R.B.C. Count., RBC diluting Fluid , Calculation , Write Cell Count, Procedure for W.B.C count , WBC diluting fluid , Calculation , Differential white cell count. , Morphology of write cell, Normal values, Romanosky Stains , Counting methods , Absolute Eosinophil Count Direct/Indirect smear examination., ESR, Westergren's, Wintrobe's, Factors affecting ESR, Importance and Limitation , Normal value and interpretation. , Packed Cell Volume (Haematocrit), Macro and Micro method ,Interpretation., Haemoglobin estimation , Colorimetric method ,Sahali's method, Cyanmethaemoglobin method. , Interpretation of result , Red Cell Indices, Calculation and importance of Reticulocyte count., Method-Interpretation ,Sickle Cell Preparation , Osmotic fragility test- Interpretation ,Estimation of G-6-PD, Principle of Electrophoresis. , Preparation of bone marrow aspiration and trephine biopsy.,Coagulation test: , Bleeding time , Whole blood coagulation time , Clot retraction test , Prothrombin time , Platelet count, Comments on peripheral smear., LE Cell Phenomenon.

HISTOTECHNOLOGY, CYTOLOGY, MUSEUM STUDY

Introduction, Cell, Tissue and their function., Methods of examination of tissues and cells, Fixation of tissue: Classification of fixatives., Simple Fixatives and their properties. , Tissue processing : , Collection of specimen, Labeling and fixation , Dehydration , Clearing , Impregnation , Embedding, Paraffin block making , Section Cutting: , Microtomes and microtome knives – sharpening of knife, Microtome use – Honing, Stropping, Techniques of section cutting , Mounting of sections., Frozen section.

(a) Staining :, Dyes and their properties , Theory of staining , Staining technique with haematoxylin and eosin. , Mounting of actions , Common special stains – , Routine H & E, Meason Trichrome , Men – Geison , Reticulin , PAS, Fe, Lipid, Mucicamine , Vencos for calcium , Special staining , Decalcification : , Fixation , Decalcification , Detection of end point, Neutralization and processing.

(a) Exfoliative Cytology and Fine needle aspiration cytology : , Types of specimens and preservation. , Preparation and fixation of smears. , Papanicolaous staining technique/MCC staining/HE staining/. , Sex chromatin staining. , Nuscum Techniques. , Reception of specimen., Preparation of fixation , Preservation , Presentation

AUTOPSY TECHNIQUE:

Assisting in autopsy, Preservation of organs and ,Processing of the tissue.
Waste disposal and safety in laboratory.

PRACTICAL

IMMUNO HAEMATOLOGY & BLOOD BANKING

ABO-Blood Grouping : Slide technique,
Cross matching, -Major Cross Matching -Minor Cross Matching,
Rh.-Typing,
Coomb's Test –Direct, Indirect ,
Donor Screening and Selection, Identification, Recording, Grouping and typing of donor's blood., Drawing of blood – Asepsis, Measurance, Venipuncture, Collection.,Blood,Preservation and Storage Recording the details and storage of blood,
Maintenance, cleaning of various equipments used in the blood bank

CLINICAL PATHOLOGY & HAEMATOLOGY

1. Analysis of Urine for routine and others tests.
2. Urine microscopic examination.
3. Faeces occult blood test.
4. Seminal fluid analysis.
5. Analysis of aspiration fluids.
6. Staining and examination of different smears.
7. Use of Microscope, care and Maintenance.

8. Haemoglobin estimation –Sahali's
9. Demonstration of colorimetric Hb estimation.
10. Total RBC Count.
11. Total Leucoyte Count.
12. Differential count of Leucocyte.
13. Reticulocyte
14. Total platelet count, Direct, Indirect
15. Absolute Eosnophil count, Direct , Indirect
16. Bleeding time and clotting time.
17. Examination of Blood Parasites., Malaria Parasite, Microfilaria
18. Prothromibin time-Demonstration
19. ESR-Westergren's&Wintrobes
20. POV (Haematocrit)
21. Sickle Cell Test
22. Osmotic Fragility Test
23. Estimation of G-6-PD
24. Electrophoresis Test
25. Comments' on peripheral smear
26. LE Cell phenomenon.

HISTOTECHNOLOGY, CYTOLOGY, MUSEUM STUDY

Histotechnology and Cytology ,Fixation, processing, embedding and section and , reparation of slides., Sharpening of the knife. , Preparation of fixatives and , , decalcifying fluid. , Preparation of adhesives to fix the section to the slide. , Preparation and fixation of cytology smears and ,Papanicolaoue's staining techniques., MOG staining /HE staining. , Mounting.

MICROBIOLOGY

GENERAL BACTERIOLOGY

History of Microbiology, Microbes and their classification , Study of different , microscopes, Morphology of bacteria, Motional requirements of bacteria, Preparation and uses of culture media, Culture methods and identification of bacteria.

Sterilization and Disinfection
Physical Chemical, Mechanical methods, Sterilization of media, syringe, glassware's etc., Safe disposal of contaminated media etc.
Bio-Medical Waste Management

Common Laboratory equipments and uses
1.Different microscopes, incubator, BOD incubator, Refrigerator, Deep Freeze,

2. Hot air oven, Autoclave, Inspissator, Bacterial Filters, Water bath, VDRI rotatior, Centrifuge machine, Vacuum pump, Biosafety cabinets ELISA reader,etc

Anaerobic culture, Inoculation techniques, subculture and maintenance of stock culture.Isolation and identification of bacteria (Cultural characters biochemical reaction) serotyping etc. Antimicrobial susceptibility tests

SYSTEMIC BACTERIOLOGY

More importance should be given to culture methods and identification of bacteria that other properties like Pathogenesis etc.
Cocci - Staphylococci, streptococci,Pneumococci, Gonococci, Meniogococci.
Bacilli – Corynebacterium, Bacillus, Clostridium, Nonsporing anaerobes, Enterobacteriaceae, E.Coll,Klebsiella, Salmonella, Shigella, Proteus, Vibrio
- Pseudomonas, Mycobacterium (M. tuberculosis, M. Leprae), Basic idea on Actinomcycetes,Ricketsiaeae, - Spirochetes

CLINICAL MICROBIOLOGY
- Normal microbial flora of human body, Collection and transport of specimen

- Bacterimia, Pyaemia, Septicemia, Pyrexia of unknown origin (P.U.O)

- Meningitis, Food Poisoning , Respiratory Infection (Sore throat pneumonic, pulmonary Tuberculosis), Nosocomial Infections, Opportunistic Infections

MYCOLOGY
- Classification of pathogenic Fungi, Morphology of Fungi, Laboratory diagnosis of Fungi (KOH prepn. Culture media and methods, LCB mount, etc.)

- Brief idea on Dermatophytes, Candia, Aspergillus, Cryptococcus and Opportunistic Fungi.

IMMUNOLOGY AND SEROLOGY

Emphasis on principle and uses/application ,Immunity –Basic principles and classification, Antigen, Antibody (Immunoglobulin's), Complement system, Antigen – Antibody reactions, Hypersensitivity- classification & different skin tests used for diagnosis., Immunodeficiency diseases including AIDS –in brief, Autoimmunity – Basic concept, Immuno-prophylaxis & Immunization schedule, Vaccines-classification & uses.

PARASITOLOGY

- Introduction & classification of medically important parasites, Intestinal & Tissue protozoa (E.histolylica, Giardia Primary Amoebic meningo-encephalitis)
- Malaria parasite, Leishmanial parasites, Tapeworms, Flukes of liver and , Intestine, Intestinal nematodes, Filarial worms and other tissue nematodes

VIROLOGY

- General Characters of viruses, Classification in brief and name of the diseases they produce., Hepatitis viruses, HIV, (Polio, Rabies, Rota, Measles, Dengue)
- Oncogenic viruses in brief, Collection and transport of virological specimens
- Laboratory diagnosis of viral infections (various methods of virus culture, serology etc.)

ANIMAL CARE

- Care of sheep and procedure to draw blood from sheep.,Handling, feeding and Breeding of laboratory animals.

PRACTICAL

General Introduction-

Safety measures in the laboratory,
First Aid in Laboratory accidents and general precaution- any measures.
Handling and care of microscopes.,
Operation and maintenance of laboratory equipments, Anaerobic jor and other methods of anaerobic culture,
Care and cleaning of all glassware (test tubes, slides petri dishes pipettes, beakers, Rashes, funnels, syringes etc),
Collection & transport of clinical specimens (Blood CSF Urine, Stool, Bone marrow, Sputum, Swabs, Aspiration fluid etc).,
Receipts, Labeling, recording and dispatching clinical specimens.,
Keeping records after final computerization.,
Conversant with S.I. unit system for reporting. , Conversant with Fundamental Chemistry, I.e. use of indicators, strength of a solution, percent solution, part-dilution, molar solution, normal solutions etc.

Various staining technique:-

Simple stain, Gram's stain, Z.N. stain, Albert's stain, Negative stain, Spore stain, Neisser's stain, Lactophenol cotton blue staining for fungi, Leishman stain, Geimsa stain, Other special stain.

Wet preparations
Hanging drop preparation,
KoH preparation for fungi,
Vaginal fluid examination,
Isolation of bacteria in pure culture and Antibiotic sensitivity.,
Identification of common bacteria by studying their morphology, cultural character, Biochemical reactions, slide agglutination and other tests.,
Maintenance and preservation of stock culture. ,
Study of fungi by wet preparation, staining, culture.

CLINICAL MICROBIOLOGY:-

Approach to various clinical syndromes
Collection transport and processing of various clinical specimens , i.e. blood, CSF urine swabs faeces, etc. For microbiological diagnosis.,Investigation of various common epidemics , Gastroenteritis, Cholera, Food poisoning, Meningitis , Encephalitis, P.U.O., Study of nosocomial infection.
Handling of automated instruments like used in bacteriology and serology laboratory.

PARASITOLOGY
Collection, transportation, preservation of faecal materials for examination of parasites.
a) Saline and lodine preparation of faeces for identification of Ova Cysts, RBC, Pus cells, Macrophage bacterial and fungal study
b) Concentration techniques for examination of faeces.
Blood smear examination for malaria parasite L.D. bodies, micro filarial etc.

VIROLOGY –
Embryonated egg inoculation,
Tissue culture techniques –
Serological tests for diagnosis of common viral diseases,
HIV surveillance lab and ELISA / Rapid tests.
Basic molecular techniques like conventional PCR and RT PCR.

SEROLOGY –
Widal test and preparation of Salmonella antigens, VDRI Test, Latest agglutination tests for (RA, CRP, ASO, Pregnancy Test, Australia Antigen, Toxoplasmosis)
ELISA , Immunofluoroscence, RIA Test, Get diffusion techniques and ,Immuno electro phoresis, Detection of Antigen / Antibody for Malarial (ICT), Optimal Test, Assay of immunoglobulins
Diagnostic skin tests-
- Tuberculin test (mantoux test), Lepromin test, Casoni's test, Other tests.

BIOCHEMISTRY

Theory

1. Chemistry of a) Carbohydrates
   b) Fat
   c) Proteins& Amino acid
2. Water & Fat soluble Vitamin, Plasma protein.
3. Enzymes (Classification, factors regulating, institution 2 clinical application)
4. Buffers, Molarity, indicators, Radioisotopes, Radiation hazard, RSA.
5. Overview of Iron, Calcium, Iodine, Flourine.
6. Overview of Nucleic Acids & Uric Acid.

Practical

1. Laboratory safety, Glass ware cleaning.
2. Pipettes, record maintenance.
3. Tests for Carbohydrate.
4. Tests forProteins &Amino Acids.
5. Tests for Iron, Calcium, Iodine, Flourine, etc
6. Physiological Urine.

CLINICAL BIOCHEMISTRY

ORGAN FUNCTION TESTS

1. Endocrine Function Testes – Thyroid Function Tests
2. Biochemical tests of CSF-
3. Renal FunctionTests-
   24 hr collection, preservation
   Physical characteristics, clearance tests.
4. Liver function tests.
5. Gastric Function Tests
6. Pancreatic Function Tests

Serum Amylase, Serum Trypsin, Serum Lipase,.

CLINICAL ENZYMOLOGY & ORGANIZATION

Fundamentals of analytical bio-chemistry and instrumentation.

1. Clinical enzymology – Diagnostic enzymes, Iso-zymes.
2. Fundamentals of Analytical Bio-chemistry & Instrumentation
   - Analytical balance
   - Centrifuges
   - Colorimeter and spectrophotometer
   - Flame photometer
   - Auto analyzers
   - Chromatography
   - Electrophoresis

ORAL AND PRACTICAL

List of Practical's in Clinical Bio-chemistry

Determination in Blood/Serum of

- Glucose Tolerance Tests
- Urea
- Creatinine
- Uric Acid
- Cholesterol, Triglycerides, HDL Cholesterol, Lipid Profile
- Total serum protein and albumin
- T3, T4, TSH

STATISTICS & BASIC COMPUTER TECHNIQUES

TABULATIONS **:** Simple Tables, Frequency Distribution Tables
DIAGRAMS : Bar Diagrams, Histogram, Line Diagram, Pie Diagram
STATISTICAL AVERAGES : Mean, Median, Mode
MEASURES OF DISPESION : Normal Curve, Range,
Standard Deviation
Standard Error.
TESTS OF SIGNIFICANCE : 't' Test

Use of computer in Laboratory

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