

# 052/2022

Question Booklet  
Alpha Code

**A**

Question Booklet  
Serial Number

**Total Number of questions : 100**

**Time : 90 Minutes**

**Maximum Marks : 100**

## INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet Alpha Code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the Alpha Code does not match to the allotted Alpha Code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is unnumbered, please get it replaced by new question booklet with same Alpha Code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so, he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same Alpha Code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

**A**

**DO NOT WRITE HERE**

1. Increased osmotic fragility is seen in  
(A) Iron deficiency anemia (B) Thalassemia  
(C) Sickle cell disease (D) Hereditary spherocytosis
2. Which among the following is an example of supravital stain?  
(A) Jenner stain (B) Brilliant cresyl blue  
(C) Perls stain (D) Leishman stain
3. Clot solubility test is used for testing  
(A) Factor II activity (B) Factor VII activity  
(C) Factor XI activity (D) Factor XIII activity
4. Fetal hemoglobin in RBC can be demonstrated using  
(A) JSB stain (B) PAS stain  
(C) Kleihauer acid elution method (D) Tartrate resistant acid phosphatase
5. Increased rouleaux formation in peripheral smear is suggestive of  
(A) Multiple Myeloma (B) Hemolytic anaemia  
(C) Acute leukemia (D) Hereditary spherocytosis
6. Which among the following is an example of coloured crystal in urine?  
(A) Amorphous urates (B) Cholesterol  
(C) Triple phosphate (D) Calcium phosphate
7. Normal range of sperm count:  
(A) 60-150 sperms/ml (B) 60-150 thousand sperms/ml  
(C) 60-150 million sperms/ml (D) 60-150 billion sperms/ml
8. Which disease is caused due to human ingestion of eggs of *Tenia solium*?  
(A) Cysticercosis (B) Sparganosis  
(C) Toxoplasmosis (D) Ascariasis
9. Macroscopic examination findings on sputum analysis include all EXCEPT  
(A) Sulphur granules (B) Curschmann's spirals  
(C) Broncholiths (D) Bronchial casts
10. The urine preservative interfering with sulphosalicylic acid precipitation test for protein is:  
(A) Toluene (B) Formalin  
(C) Thymol (D) Chloroform

**A**

11. Which among the following infection is NOT USUALLY transmitted through blood transfusion?
- (A) Syphilis (B) Hepatitis A  
(C) Malaria (D) HIV
12. The anticoagulant preservative used for storage of blood in blood bank is
- (A) CPD (B) EDTA  
(C) Oxalate (D) Fluoride
13. The gauge of needle used for blood donation:
- (A) 16 G (B) 18 G  
(C) 21 G (D) 23 G
14. False negative result in ABO Grouping occurs due to:
- (A) Excessive centrifugation in Tube method  
(B) Dust or detergents in the slide or tube  
(C) Antisera contaminated with another antibody  
(D) Prozone or postzone phenomenon
15. In Hemolytic Disease of Newborn, Direct Coomb's Test is used to detect:
- (A) Sensitized antibodies in baby's serum (B) IgA antibody  
(C) Sensitized RBCs in baby's blood (D) IgM antibody
16. Which of the statements about tissue Fixative is NOT TRUE?
- (A) Preserves cells and tissue by preventing autolysis and putrefaction  
(B) Hardens soft tissue  
(C) Increase in temperature accelerates fixation  
(D) Prolonged fixation preserves antigenicity well
17. Which of the following is NOT a clearing agent?
- (A) Ethyl Alcohol (B) Cedar wood oil  
(C) Benzene (D) Xylene
18. In Histopathology, Honing is a process
- (A) To polish knife (B) To sharpen knife by removing nicks  
(C) To trim the paraffin block (D) To embed impregnated tissue in wax

19. Which of the following is a synthetic dye?  
(A) Carmine (B) Orcein  
(C) Eosin (D) Haematoxylin
20. Which statement is CORRECT about Alum in histotechnique?  
(A) Is used in the procedure of differentiation in staining  
(B) Is a Dye which improves staining reaction  
(C) Is Double sulphates of trivalent metals  
(D) Is a blueing agent in staining
21. Saccomanno fixative contains all EXCEPT  
(A) Water (B) Ethyl Alcohol  
(C) Carbowax (D) Glacial acetic acid
22. Which of the following is the Nuclear stain in Papanicolaou stain?  
(A) Light Green SF (B) Orange G-6  
(C) Haematoxylin (D) Bismarck Brown Y
23. Which is NOT TRUE about Carnoy's Fixative in cytology?  
(A) Used to clear bloody background in cytology samples  
(B) Is a good Nuclear fixative  
(C) Is a formalin-based fixative  
(D) Preserves glycogen well
24. Which is NOT TRUE of Barr body?  
(A) Can be identified in Papanicolaou stained buccal smear  
(B) Seen in 40% males  
(C) Seen adjacent to nuclear membrane  
(D) Is an inactivated X chromosome in females
25. What is NOT TRUE about Liquid Based Cytology?  
(A) Ancillary techniques cannot be performed on LBC smears  
(B) Improves cell preservation and mono layering on slides  
(C) It requires homogenization of the specimen for preparing slides  
(D) Minimizes Obscuring inflammatory cells in background

**A**

26. Which of the statements about Chromosome is NOT TRUE?  
(A) Centromere divides chromosome into two arms  
(B) The longer arm is called 'p' and shorter arm is called 'q'  
(C) A somatic cell has 46 chromosomes  
(D) In Karyotyping, each pair of autosomes are arranged according to length
27. Which of the following is NOT TRUE about traditional Cytogenetic analysis?  
(A) Used in Prenatal diagnosis of congenital disorders  
(B) Used in Evaluation of neoplastic disorders  
(C) Can be performed on non-viable tissue cells  
(D) Numerical abnormalities of chromosomes can be studied
28. Peripheral blood sample for routine karyotyping is collected in \_\_\_\_\_  
(A) EDTA (B) Heparin  
(C) Normal saline (D) Sodium Citrate 3.8%
29. Which statement about Colcemid (Colchicine) in karyotyping is NOT TRUE?  
(A) Used in cell harvesting stage  
(B) Arrest cell division at metaphase  
(C) Prevent separation of sister chromatids  
(D) Is a mitogen used for cell proliferation
30. In a G-banding Karyotype analysis which is the Chromosome staining pattern seen?  
(A) Dark bands are AT-rich (gene-poor); Light bands are CG-rich (gene-rich) regions  
(B) Light bands are AT-rich (gene-poor); Dark bands are CG-rich (gene-rich) region  
(C) Centromere staining is bright  
(D) Only a defined portion of chromosome is stained
31. Which light source gives maximum resolution in a microscope?  
(A) Ultraviolet (B) Blue  
(C) Green (D) Red
32. The recommended holding period for sterilization of glass wares using hot air oven set at 160°C is  
(A) 20 minutes (B) 30 minutes  
(C) 45 minutes (D) 60 minutes
33. Which of the following vaccines was not developed by Pasteur?  
(A) Polio vaccine (B) Rabies vaccine  
(C) Anthrax vaccine (D) Chicken cholera vaccine

34. Rideal-Walker test is used for testing  
(A) Efficacy of bacteriologic filters (B) Efficacy of antibiotics  
(C) Efficacy of disinfectants (D) Efficacy of ionizing radiation
35. If a delay in bacteriological examination of CSF is anticipated it is recommended that  
(A) The sample should be kept frozen  
(B) The sample should be refrigerated  
(C) The sample should be kept at room temperature  
(D) The sample should be kept in incubator at 37°C
36. Which of the following survives the holder method of pasteurization?  
(A) *Mycobacterium* (B) *Brucellae*  
(C) *Coxiella burnetii* (D) *Salmonellae*
37. Charcot-Leyden crystals occur in  
(A) Amoebic dysentery (B) Ulcerative colitis  
(C) Malignancy (D) All the above conditions
38. Which of the following is known as human pinworm?  
(A) *Trichuris trichiura* (B) *Enterobius vermicularis*  
(C) *Necator americanus* (D) *Ancylostoma duodenale*
39. Crescentic macrogametocytes are characteristics of  
(A) *Plasmodium vivax* (B) *Plasmodium ovale*  
(C) *Plasmodium falciparum* (D) *Plasmodium malariae*
40. DEC Provocation test is used in the diagnosis of  
(A) Amoebiasis (B) Filariasis  
(C) Leishmaniasis (D) Trypanosomiasis
41. Leishmanin test is positive in  
(A) Visceral leishmaniasis (B) Cutaneous leishmaniasis  
(C) Diffuse cutaneous leishmaniasis (D) All of the above
42. Which of the following causes subcutaneous filariasis?  
(A) *Mansonella streptocerca* (B) *Wuchereria bancrofti*  
(C) *Brugia malayi* (D) *Brugia timori*

**A**

43. The culture method for Antibiotic sensitivity  
(A) Streak (B) Lawn  
(C) Stroke (D) Pour plate
44. Test for identifying pathogenic species of Staphylococcus  
(A) Coagulase (B) Catalase  
(C) Indole (D) Oxidase
45. Method for sterilisation of glasswares  
(A) Flaming (B) Tyndallisation  
(C) Inspissation (D) Hot Air Oven
46. Following is a dimorphic fungi  
(A) Mucor (B) Aspergillus  
(C) Rhinosporidium (D) Histoplasma
47. Specimen which can be used for lab diagnosis of Poliomyelitis  
(A) Throat swab (B) Rectal swab  
(C) Stool sample (D) All of the above
48. If there is a delay in processing, C.S.F. samples are stored at  
(A) 0°C (B) – 70°C  
(C) 37°C (D) 4°C
49. Common test for identification of Candida albicans  
(A) Germ Tube Test (B) Hair Perforation test  
(C) Urease test (D) Negative staining
50. Viral infection which can be acquired by needle prick  
(A) HIV (B) Hepatitis B  
(C) Hepatitis C (D) All of the above
51. Following is an Anaerobic culture medium  
(A) RCM (B) Peptone water  
(C) Nutrient broth (D) Glucose broth
52. Cryptococcus is an example of which type of fungus?  
(A) Yeast like (B) Mould  
(C) Yeast (D) Dimorphic fungus

53. Dengue virus infection is transmitted by  
(A) Faeco-oral route (B) Mosquito bite  
(C) Blood transfusion (D) Inhalation
54. Common staining method used to demonstrate Mycobacterium tuberculosis  
(A) Gram staining (B) ZN staining  
(C) Albert's staining (D) Any of the above
55. Sabouraud's Dextrose Agar has a pH of  
(A) 7.2 (B) 5.4  
(C) 3.5 (D) 8.6
56. Following is NOT an RNA virus  
(A) HIV (B) Hepatitis B  
(C) Influenza (D) Covid-19 virus
57. Slide culture technique is used to identify all EXCEPT  
(A) Penicillium (B) Fusarium  
(C) Cryptococcus (D) Rhizopus
58. Best disinfectant which can be used for blood spills  
(A) Potassium permanganate (B) Phenol  
(C) Dettol (D) Hypochlorite
59. Following is used to digest Keratin in specimens like Skin and Nail  
(A) Lactophenol cotton blue (B) KOH  
(C) Calcoflour white (D) India ink
60. All are screening tests used for lab diagnosis of HIV infection EXCEPT  
(A) ELISA (B) Immunochromatography  
(C) Western Blot (D) Comb tests
61. Which one of the following is suitable for storing hydrofluoric acid?  
(A) Tightly closed borosilicate container with metallic lid  
(B) Tightly closed amber colored borosilicate container with metallic lid  
(C) Tightly closed polyethylene container  
(D) None of the above

**A**

62. Regarding setting of a standardized Clinical Biochemistry Laboratory, which of the following statement is NOT CORRECT?
- (A) The interior electric wiring should have a three wire system
  - (B) Each electric socket outlet should be used for only one appliance
  - (C) There should be a provision for an ordinary refrigerator for storing flammable chemicals
  - (D) All chemicals should be properly labelled with warnings
63. Which grade chemical is used for chromatographic purposes?
- (A) Analytic Reagent grade
  - (B) Guaranteed Reagent grade
  - (C) Laboratory Reagent grade
  - (D) Ultra pure grade
64. All the following purification techniques produce pyrogen free water EXCEPT
- (A) Distillation
  - (B) Ultrafiltration
  - (C) Deionization
  - (D) Nanofiltration
65. In all the following instruments filters can be used for producing monochromatic light EXCEPT
- (A) Spectrophotometer
  - (B) Colorimeter
  - (C) Photometer
  - (D) Fluorometer
66. Which of the following is NOT used as a urine preservative?
- (A) Tungstic acid
  - (B) Thymol
  - (C) Hydrochloric acid
  - (D) Chloroform
67. The anticoagulant which causes least interference with clinical biochemistry tests is
- (A) EDTA
  - (B) Heparin
  - (C) Sodium citrate
  - (D) Sodium fluoride
68. For Blood Gas Analysis, which of the following statements is FALSE?
- (A) Arterial blood is used
  - (B) Vacutainer tubes are used for blood collection
  - (C) Blood should not come in contact with air
  - (D) Blood should be transported to the laboratory immediately
69. Which of the following is the SI unit of mass density?
- (A) Kilogram/Litre
  - (B) Kilogram/cubic meter
  - (C) Gram/decilitre
  - (D) Gram/cubic centimeter

70. In column chromatography, the analytes are identified by the comparison of their
- (A) Bandwidth with that of the standard
  - (B) Resolution factor with that of the standard
  - (C) Ratio of fronts with that of the standard
  - (D) Retention time with that of the standard
71. Regarding automation in the laboratory, all the following statements are true EXCEPT
- (A) Minimize the variation in results
  - (B) Lowers the cost per test
  - (C) Use small amount of sample and reagents
  - (D) Can correct for deficiencies inherent in methodology
72. Westgard multirule  $4_{1s}$  indicates that four consecutive observations had exceeded the mean plus 1s or the mean minus 1s. This control rule is sensitive to which type of analytical error?
- (A) Bias error
  - (B) Random error
  - (C) Systematic error
  - (D) Imprecision error
73. All the following statements are TRUE about preparation of buffer solutions EXCEPT
- (A) Prepared by combining an acidic salt and a basic salt
  - (B) Prepared by combining a strong acid and its salt
  - (C) Prepared by combining a weak acid and its salt
  - (D) Prepared by combining a weak base and its salt
74. Which is the most widely used detector for clinical analysis in gas chromatography?
- (A) Flame ionization detector
  - (B) Thermal conductivity detector
  - (C) Electron capture detector
  - (D) Thermionic selective detector
75. Metabolic acidosis is seen in all the following conditions EXCEPT
- (A) Renal failure
  - (B) Diabetic Keto acidosis
  - (C) Prolonged Diarrhea
  - (D) Bronchial asthma
76. What is the normality of a 500ml solution that contains 6g of HCL (Eq. wt of HCL is 36g)?
- (A) 0.66N
  - (B) 0.33N
  - (C) 0.36N
  - (D) 0.18N
77. Which of the following needs recalibration in the laboratory?
- (A) Class A volumetric flask
  - (B) Class A pipette
  - (C) Automatic pipette
  - (D) All of the above

**A**

78. In accidental swallowing of acid, which of the following should NOT be done as a first aid measure?
- (A) Drink water  
(B) Oral intake of 5% soap solution  
(C) Oral intake of 8% magnesium hydroxide  
(D) Oral intake of 5% sodium bicarbonate
79. In dry reagent systems which of the following techniques is used for mixing reactants?
- (A) Forceful dispensing (B) Vigorous lateral displacement  
(C) Use of ultrasonic energy (D) None of the above
80. The standardized unit of radioactivity is
- (A) Rontgen (B) Curie  
(C) Becquerel (D) Counts per minute
81. Which of the following statements regarding urinary calculi are correct?
- (i) Urinary calculi require a nucleus on which crystals are deposited.  
(ii) Increased excretion along with concentrated urine can be a predisposing factor.  
(iii) Murexide test for analysis of calculi does not require heating.  
(iv) Cyanide - nitroprusside test is used for detecting the presence of cystine in calculi.
- (A) Only (i and ii) (B) All of the above  
(C) None of the above (D) Only (i, ii and iv)
82. Which of these hormones is NOT secreted by the thyroid gland?
- (A) Thyroxine (B) Triiodothyronine  
(C) Prolactin (D) Calcitonin
83. Abnormal finding during gross examination of gastric juice is
- (A) pH-0.9-1.5  
(B) Grey color in appearance  
(C) Red or coffee brown color in appearance  
(D) Sour or slightly rancid odour
84. Which of the following statements is INCORRECT regarding CSF in a healthy individual?
- (A) Normal CSF is clear and colorless (B) Cells- 15-20 lymphocytes/cu.mm  
(C) Total protein-0.15-0.45 g/L. (D) Average volume-100-150 ml

85. Polyuria can be caused by  
(A) Diabetes mellitus (B) Vomiting  
(C) Obstruction to urine flow (D) Diarrhoea
86. Regarding immunological reactions, select the incorrect statement  
(A) Humoral immunity denotes immunity mediated by natural killer cells and macrophages  
(B) Interferons are released by lymphocytes  
(C) Cytokines are used for cell signalling and are secreted by glial cells  
(D) Major histocompatibility complex is a large genomic region
87. Regarding immunological methods, select the correct statement  
(A) ELISA is a non-specific test  
(B) Small amount of specimen is used to perform ELISA  
(C) In Indirect ELISA, antibody coated wells are used  
(D) ELISA cannot be automated
88. Drug screening can be done by  
(A) Microdiffusion tests for volatile compounds  
(B) Immunoassays  
(C) Spot test on paper or tile  
(D) All of the above
89. Regarding electrophoresis, all the following is used for staining proteins EXCEPT  
(A) Oil red (B) Amidoschwarz (Amido black)  
(C) Bromophenol blue (D) Azocarmine
90. Which of these are involved in DNA replication?  
(A) Aminoacyl tRNA synthetase (B) Single stranded DNA binding proteins  
(C) Pribnow box (D) Release factor 1
91. Southern blotting uses which sample as test material for electrophoretic fractionation?  
(A) RNA (B) Proteins  
(C) DNA (D) Apolipoprotein

**A**

92. This enzyme derived from a microorganism is used in the gene cloning procedure  
(A) DNA dependent RNA polymerase  
(B) O<sup>6</sup> - methyl guanine DNA methyl transferase  
(C) Taq derived DNA polymerase  
(D) EcoR1
93. Prolactin levels are high in the following situations  
(A) During sleep (B) Exercise  
(C) None of the above (D) Both (A and B)
94. Drugs that can cause elevation in ALP  
(A) Isoniazid (B) Allopurinol  
(C) Oral contraceptives (D) All of the above
95. With regard to diagnostic role of enzymes in myocardial infarction (MI), choose the correct statement  
(A) LDH determination may be useful in late diagnosis of MI  
(B) LDH<sub>3</sub> and LDH<sub>5</sub> are increased in MI  
(C) If CK-MB fraction level < 6% of total CK activity it is diagnostic of MI  
(D) CK level increases after 24 hours of myocardial infarction
96. Select the correct option regarding enzyme inhibition  
(i) Succinate dehydrogenase is inhibited by malonic acid  
(ii) Iodoacetate is an irreversible inhibitor of glyceraldehyde 3 phosphate dehydrogenase  
(iii) PFK is inhibited by citrate and ATP  
(A) Options (i and iii) are correct (B) Options (i and ii) are correct  
(C) All 3 statements are incorrect (D) All 3 statements are correct
97. Regarding digestion of lipids, it is initiated in  
(A) Stomach (B) Mouth  
(C) Small intestine (D) Large intestine
98. Best indicator of Vitamin B<sub>6</sub> status in plasma  
(A) Folic acid (B) Pyridoxal phosphate  
(C) Riboflavin (D) Thiamine pyrophosphate

99. Choose incorrect statement regarding laboratory observations in prehepatic jaundice
- (A) Indirect bilirubin - Normal                      (B) Urine - becomes dark on standing  
(C) Total bilirubin - Increased                      (D) Urine - bile pigments - Absent
100. Regarding type 2 Diabetes Mellitus (DM), select the incorrect statement
- (A) Characterised by insulin resistance in peripheral tissue  
(B) Most common form of DM  
(C) Not associated with family history of DM and obesity  
(D) More common in women with history of Gestational Diabetes Mellitus.
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**A**

SPACE FOR ROUGH WORK

