

91/25

Question Booklet Alpha Code

A

Question Booklet Sl. No.

A

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 un-numbered, 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/her 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

1. All of the following belong to Romanowsky group of stains except
 A) Giemsa B) Jenner's C) Methyl Violet D) Wright's
2. Normal range of absolute eosinophil count in blood is
 A) 60 – 650 cells/mm³ B) 20 – 250 cells/mm³
 C) 50 – 550 cells/mm³ D) 40 – 450 cells/mm³
3. Following are constituents of Drabkin's solution except
 A) Potassium cyanide B) Potassium ferricyanide
 C) Potassium ferrocyanide D) Potassium dihydrogen phosphate
4. Depth of improved Neubauer counting chamber is
 A) 0.1 mm B) 0.2 mm C) 0.3 mm D) 0.5 mm
5. Anticoagulant suitable for blood in blood transfusion is
 A) Heparin, dextrose and citrate B) Oxalate, phosphate and glucose
 C) Citrate, phosphate and dextrose D) EDTA, dextrose and saline
6. Anticoagulant present in Grey top vacutainer is
 A) Heparin B) Fluoride
 C) Sodium citrate D) EDTA
7. Fragmented Red Blood Cells in peripheral smear are called
 A) Burr cells B) Acanthocytes C) Schistocytes D) Target cells
8. Ketone bodies in urine are all except
 A) acetone B) aceto acetic acid
 C) beta hydroxy stearic acid D) beta hydroxy butyric acid
9. All of the following fixatives contain Mercury except
 A) Gander's fluid B) Zenker's fluid
 C) Helly's fluid D) Heidenhain susa
10. Barr bodies are
 A) Inactivated Y chromosome B) Inactivated X chromosome
 C) Inactivated DNA enzymes D) Inactivated Ribosomes
11. Phospho tungstic acid hematoxylin stain is used for the demonstration of
 A) Collagen B) Cross striations in muscle
 C) Iron D) Mucin

12. Which of the following is the method used for removal of formalin pigment from tissue ?
 A) Verocay's method
 B) Adhesive tape method
 C) Ion exchange method
 D) Masson fontana method
13. All red's scoring system is used for IHC scoring of carcinoma in the following organ
 A) Breast
 B) Colon
 C) Lung
 D) Prostate
14. The clearance angle of microtome knife is the angle between
 A) Block face and upper cutting facet of knife
 B) Upper surface of cutting facet and surface of block
 C) Block face and lower cutting facet of knife
 D) Sides of wedge knife
15. Which of the following is picric acid containing fixative ?
 A) B5 fixative
 B) Bouin's fluid
 C) Schaudinn's fluid
 D) Zenker's fixative
16. Carbowax fixative contains all the following ingredients except
 A) Ether
 B) 95% ethyl alcohol
 C) Polyethylene glycol
 D) Diaphane
17. Which of the following can be used as a prefixative for cytologic smears ?
 A) 70% isopropyl alcohol
 B) 50% ethyl alcohol
 C) Saccomanno's fixative
 D) 95% denatured alcohol
18. Sodium iodate is the chemical ripening agent used for the preparation of following hematoxylin except
 A) Gill's
 B) Harris
 C) Lillie Mayer
 D) Mayer
19. All the following stains are specifically used for the demonstration of Barr body except
 A) Aceto orcein
 B) Blebrich scarlet
 C) Methyl green pyronin
 D) Cresyl violet
20. The fixative specifically used for bloody smear is
 A) 80% isopropyl alcohol
 B) 95% denatured alcohol
 C) 100% methanol
 D) Carnoy's fixative

21. Nucleotides are composed of
- A) a pentose sugar, a phosphate group and a base group
 - B) a fatty acid, a base group and a pentose sugar
 - C) a hexose sugar, a phosphate group and an amino acid
 - D) none of the above
22. Hemophilia A and B are
- A) X-linked dominant disorder
 - B) Y-linked dominant disorder
 - C) X-linked recessive disorder
 - D) Y-linked recessive disorder
23. True about mutation
- A) A permanent change in the DNA
 - B) A temporary change in DNA
 - C) Somatic cell mutations causes hereditary diseases
 - D) None of the above
24. In Polymerase Chain Reaction (PCR) single cycle involves
- A) Heating – to denature the DNA
 - B) Cooling – to allow annealing
 - C) Extension and synthesis of DNA
 - D) All of the above
25. Application of DNA array in transfusion medicine mainly
- A) For genotyping blood group antigen
 - B) For evaluating transfusion reaction
 - C) For antibody identification
 - D) None of the above
26. ABO blood group gene locus is in chromosome number
- A) 19
 - B) 9
 - C) 10
 - D) 12
27. The antibody present in serum of AB blood group
- A) Anti A
 - B) Anti B
 - C) Both Anti A and Anti B
 - D) No Anti A or Anti B

28. Rh blood group system antibodies (Anti D antibody) are usually _____ type.
 A) IgM B) IgG C) IgA D) IgE
29. Constituents of cryoprecipitate
 A) Factor IX B) Factor VIII
 C) Fibrinogen D) Both B) and C)
30. Minimum haemoglobin level required for a whole blood donor
 A) >14 gm/dl B) >11 gm/dl
 C) >10 gm/dl D) ≥ 12.5 gm/dl
31. The first scientist who observed bacteria and other microorganisms using a single-lens microscope
 A) Louis Pasteur B) Antonie van Leeuwenhoek
 C) Robert Koch D) Ernst Ruska
32. All are true about dark ground microscopy except
 A) Object appears bright against a dark background
 B) Contrast is improved by using reflected light
 C) It is used for visualising Spirochetes
 D) Light from a high-intensity source to excite fluorescent agent is used
33. Biological Sterilization control used for Autoclave is
 A) Paper strips impregnated with 10^6 spores of *Bacillus apropeus*
 B) Thermocouple
 C) Paper strips impregnated with 10^6 spores of *Geobacillus stearothermophilus*
 D) Paper strips impregnated with 10^6 spores of *Corynebacterium diphtheria*
34. According to Biomedical Waste Management Rules (amended in 2019) broken glass wares should be discarded in
 A) Yellow bag
 B) Red bag
 C) White, leak-proof and puncture-proof translucent container
 D) Blue, leak-proof and puncture-proof container
35. The following specimen should not be accepted for bacterial culture
 A) Specimen collected in a proper leakproof sterile container
 B) Tissue sample collected in sterile normal saline
 C) Specimen accompanied by properly filled request form
 D) Tissue biopsy specimen collected in formalin

36. An ideal disinfectant for blood spillage in the laboratory
- A) Quarternary ammonium compound
 - B) Povidone-iodine
 - C) 1% hypochlorite solution
 - D) Methyl alcohol
37. Organs of locomotion in bacteria
- A) Fimbriae
 - B) Flagella
 - C) Cytoplasmic membrane
 - D) Mesosomes
38. The concentration of agar used for preparing semisolid media is
- A) 3%
 - B) 2%
 - C) 0.5%
 - D) 6%
39. All are true about Kirby-Bauer's disk diffusion antimicrobial susceptibility testing except
- A) Mueller-Hinton agar is considered the best medium for non-fastidious organisms
 - B) 0.5 McFarland standard turbidity is used for inoculum preparation
 - C) Minimal distance between two antibiotic disks should be 24 mm center to center
 - D) The maximum number of disks per plate should be 12 disks on a 100 mm plate for non-fastidious organisms
40. Acid-fastness in bacteria is due to the presence of
- A) Mycolic acid
 - B) Cytoplasm
 - C) Mesosomes
 - D) Capsule
41. All are true about the Cytochrome Oxidase test used for the identification of bacteria except
- A) Oxidase reagent is 1% tetramethyl para phenylene diamine dihydrochloride
 - B) Freshly prepared oxidase reagent should be used
 - C) The positive control organism is *Escherichia coli*
 - D) Do not use the oxidase reagent if it turns blue
42. MALDI-TOF (Matrix-assisted laser desorption/ionization-time-of-flight) is
- A) Automated bacterial identification system
 - B) Turn around time is 5 days
 - C) Colorimetry is the principle
 - D) Rapid antibiotic susceptibility testing system

43. Select the wrong statement regarding processing of stool samples for demonstration of parasites.
- A) Six specimens are recommended for intestinal amoebiasis
 - B) Samples should be frozen if there is a delay in microscopic examination
 - C) Iodine mount allows better visualisation of nuclear details
 - D) Schaudinn's fluid is used for stool preservation
44. Which of the following is the best method to confirm diagnosis of Visceral Leishmaniasis ?
- A) Demonstration of amastigote in bone marrow
 - B) Demonstration of promastigote in peripheral blood smear
 - C) Serum antibody detection by ELISA test
 - D) Delayed hypersensitivity demonstration by intradermal skin test
45. Rapid diagnostic tests based on detection of Histidine Rich Proteins are available for
- A) Filariasis
 - B) Babesiosis
 - C) Cysticercosis
 - D) Malaria
46. All of the following statements are false about Cysticercosis except
- A) *Cysticercus cellulosae* is the larvae of *Taenia solium*
 - B) Commonest site of infection is intestine
 - C) Stool examination is the preferred method for lab diagnosis
 - D) Cysticercosis is acquired by ingestion of larvae
47. Infective form of *Ancylostoma duodenale* is
- A) Embryonated ova
 - B) Tetranucleate cyst
 - C) Filariform larva
 - D) Rhabditiform larva
48. Which of the following parasites causes primary meningoencephalitis ?
- A) *Entamoeba histolytica*
 - B) *Acanthamoeba*
 - C) *Naegleria fowleri*
 - D) *Entamoeba coli*
49. Select the wrong statement regarding dimorphic fungi.
- A) Exists as moulds at room temperature
 - B) *Sporothrix schenckii* is an example
 - C) Causes systemic mycoses
 - D) Galactomannan assay is useful for identification

50. Microscopic examination of Cerebrospinal fluid (CSF) from an HIV infected patient with meningitis showed Gram positive budding yeast cells. Select the true option related to the lab diagnosis of the given condition.
- A) India ink examination is useful for diagnosis
 - B) Culture of CSF sample is done on bird seed agar
 - C) Both A) and B)
 - D) None of the above
51. Select the wrong match.
- A) *Tinea versicolor* – Spaghetti and meatball appearance
 - B) *Epidermophyton* – Spindle shaped microconidia
 - C) *Fusarium* – White granules
 - D) *Chromobalstomycosis* – Sclerotic bodies
52. All of the following stains are useful for visualising fungal elements in clinical specimen except
- A) Lactophenol cotton blue
 - B) Calcofluor white
 - C) Gomori methanamine silver
 - D) Periodic acid schiff
53. Processing of skin scrapings for the lab diagnosis of Dermatophytosis does not involve
- A) Cleaning the skin with alcohol
 - B) Collecting scrapings from active edge of lesion
 - C) Transporting the scrapings in plastic container
 - D) Using 10% potassium hydroxide mount for microscopy
54. Germ tube test is used for identification of
- A) *Candida auris*
 - B) *Candida tropicalis*
 - C) *Candida krusei*
 - D) *Candida albicans*
55. Following is an enveloped virus except
- A) Hepatitis A
 - B) Hepatitis B
 - C) Hepatitis C
 - D) Herpes simplex
56. Example for a virus with single stranded DNA genome is
- A) Ebola
 - B) Rubella
 - C) Parvo
 - D) Rota

74. Choose the correct statement about flame photometer.
- i. This is an analytical instrument used for quantitative analysis of sodium, potassium and calcium
 - ii. In flame photometer the optical absorption property is used
 - iii. The equipment consists of an atomiser and compressor which pumps air at high pressure
- A) Only i and ii B) Only i and iii C) Only ii and iii D) i, ii and iii
75. Choose the correct statement about applications of radioactivity for diagnosis.
- i. ^{131}I is used for thyroid scanning
 - ii. ^{90}Sr is used for bone scanning
 - iii. Blood flow of heart could be analysed by ^{137}Cs
- A) Only i and ii B) Only i and iii C) Only ii and iii D) i, ii and iii
76. All the following are causes of metabolic acidosis except
- A) Renal failure B) Bronchial asthma
C) Diarrhoea D) Diabetic ketoacidosis
77. All the following are the substrates of gluconeogenesis except
- A) Lactate B) Pyruvate
C) Glucogenic amino acids D) Even chain fatty acids
78. All the following are hepatic markers except
- A) SGPT B) SGOT
C) CPK MB D) Alkaline phosphatase
79. All the following are true regarding calcium metabolism except
- A) Calcitonin increases serum calcium
B) Alkalosis favours binding of more calcium with proteins
C) In hypoalbuminemia the total calcium is decreased
D) PTH increases serum calcium levels
80. Which enzyme is deficient in phenylketonuria ?
- A) Tyrosine transaminase B) Phenyl alanine hydroxylase
C) Homogentisic acid oxidase D) Fumaryl acetoacetate hydrolase
81. What is the normal reference level of Alkaline Phosphatase ?
- A) 10-25 IU/L B) 40-125 IU/L C) 200-300 IU/L D) 500-600 IU/L

82. Which of the following statement is true about ADH (Antidiuretic Hormone) ?
- A) It acts on proximal convoluted tubules of the kidney and cause reabsorption of water
 - B) It binds to cell surface receptors and action is mediated through tyrosine kinase
 - C) Deficiency of ADH causes hypernatremia and hypertonic contraction of extracellular fluid volume
 - D) Dehydration or hemoconcentration suppresses ADH secretion
83. In genetic code, the reduced stringency between the third base of codon and the complementary nucleotide in the anticodon is called
- A) Nonoverlapping
 - B) Nonpunctuated
 - C) Degenerate
 - D) Wobbling phenomenon
84. Which is not true regarding Reverse Transcriptase PCR ?
- A) mRNA is detected
 - B) The quantitation of the number of virus present in the sample can be calculated
 - C) The polymerase from *Thermus thermophilus* which is used here has both DNA polymerase and reverse transcriptase activity at high temperature
 - D) It is used as the test of choice for diagnosis of COVID-19 infection
85. The removal of haploid nucleus from an egg and replacing with the diploid nucleus of a somatic cell is called
- A) Gene therapy
 - B) Blotting
 - C) Cloning
 - D) DNA fingerprinting
86. Which among the following substance in urine is detected by Ehrlich's test ?
- A) Bile salts
 - B) Ketone bodies
 - C) Bile pigments
 - D) Urobilinogen
87. The advantages of using creatinine clearance test as a marker for GFR are all of the following except
- A) Very early stages of decrease in GFR can be identified by creatinine clearance
 - B) It is not affected by diet or exercise
 - C) The conversion of creatine phosphate to creatinine is non enzymatic and spontaneous
 - D) There is no fluctuation in the blood level as the production is continuous
88. In Gastric function test, the free and total acid content of sample is measured by titration with
- A) N/10 NH_4OH
 - B) N/10 CH_3COOH
 - C) N/10 H_2SO_4
 - D) N/10 NaOH

89. In urinary calculi analysis, which among the following is detected by Murexide test ?
 A) Cystine B) Uric acid C) Oxalate D) Xanthine
90. In electrophoresis, the technique commonly used for determination of molecular weight and to assess purity of proteins is
 A) Capillary electrophoresis
 B) Isoelectric Focusing (IEF) electrophoresis
 C) Sodium Dodecyl Sulfate (SDS)-PAGE electrophoresis
 D) Agar gel electrophoresis
91. Which of the following statement is/are true regarding High Performance Liquid Chromatography (HPLC) ?
 i. In High Performance Liquid Chromatography (HPLC), particles of small diameter are used as stationary phase support
 ii. In Reverse phase High Performance Liquid Chromatography (HPLC), the stationary phase is polar and mobile phase is non polar
 iii. High Performance Liquid Chromatography (HPLC) is a subclassification of Planar Chromatography
 iv. The most popular stationary phase in Reverse phase High Performance Liquid Chromatography (HPLC) is Octadecylsilane molecules bonded to silica particles
 A) Only i and ii B) Only ii and iii C) Only i and iv D) All of the above
92. Which among the following is not a variable in Preanalytical process ?
 A) Specimen separation B) Calibration
 C) Patient preparation D) Specimen transport
93. All the following are examples of labelled immunoassays except
 A) Electroimmunoassay B) Radioimmunoassay
 C) Fluoroimmunoassay D) Chemiluminescent Immunoassay
94. Which of the following is true regarding closed system Automated Analysers ?
 A) Less expensive
 B) In house reagents can be used
 C) Less variability of test results due to use of predispensed liquid reagents
 D) Flexible and can adapt to any method or analytes

95. Which of the following is a medical coding system for laboratory ?
- A) ICD-10 (International Classification of Diseases, 10th Edition)
 - B) CPT (Current Procedure Terminology), Category I
 - C) HCPCS Level II (Health Care Procedural Coding System, Level II)
 - D) LONIC (Logical Observation Identifiers Names and Codes)
96. Determination of serum lithium can be done by all the following except
- A) Ion Selective Electrode
 - B) RIA (Radioimmunoassay)
 - C) Flame Emission Photometry
 - D) Atomic Absorption Spectrometric Assay
97. All the following tests are used to assess Pancreatic function except
- A) Blood Glucose
 - B) Faecal fat analysis
 - C) Secretin
 - D) Albumin
98. Which of the following is the correct order of Laboratory testing process ?
- A) Specimen acquisition, Test ordering, Test reporting, Analytical measurement, Test interpretation
 - B) Test ordering, Specimen acquisition, Test reporting, Analytical measurement, Test interpretation
 - C) Test ordering, Specimen acquisition, Analytical measurement, Test reporting, Test interpretation
 - D) Specimen acquisition, Test ordering, Analytical measurement, Test reporting, Test interpretation
99. Which is the visualising agent used for the identification of aminoacids in urine in Paper Chromatography ?
- A) Ninhydrin
 - B) PABA
 - C) Aniline – Diphenylamine
 - D) Butanol-Acetic acid-Water
100. Which immunoglobulin mediates Rh incompatibility ?
- A) IgG
 - B) IgA
 - C) IgM
 - D) IgE

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Space for Rough Work

