69/2025

Question Booklet Alpha Code	A	Question Booklet Serial Number

Total Number of Questions : 100 **Time : 1 Hour 30 Minutes**

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

A

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/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 1/3rd 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.

1. Which of the following anticoagulants is used for coagulation studies?

   (A) Trisodium citrate

   (B) Heparin

   (C) EDTA

   (D) Double oxalate

2. Iron deficiency anemia is characterized by all, EXCEPT

   (A) MCV < 80 fl

   (B) MCH < 25 pg

   (C) MCHC < 27 g/dl

   (D) RDW < 13%

3. Which cytochemical stain shows block positivity in lymphoblast?

   (A) Myeloperoxidase

   (B) PAS

   (C) Sudan Black

   (D) Non-specific esterase

4. Which of the following diluting fluids is used for absolute eosinophil count?

   (A) Hayem's

   (B) Turk's

   (C) Dunger's

   (D) Rees-Ecker

5. In peripheral smear staining by Leishman stain, undiluted stain is added first and then water is added only after 2 minutes. During this initial 2 minutes, there is

   (A) Staining of smear

   (B) Settling of stain particles

   (C) Settling of cells

   (D) Fixation of smear

6. Increased number of eosinophils in sputum is seen in

(A) Bronchial asthma

(B) Pulmonary tuberculosis

(C) Pneumococcal pneumonia

(D) Carcinoma lung

7. If floccular precipitate is obtained in heat and acetic acid test of urine, then the amount of protein in urine is graded as

(A) 1+

(B) 2+

(C) 3+

(D) 4+

8. Semen diluting fluid contains

(A) Sodium chloride

(B) Sodium bicarbonate

(C) Sodium citrate

(D) Sodium sulphate

9. Cobweb coagulum on standing is formed in CSF in which type of meningitis?

(A) Fungal

(B) Viral

(C) Bacterial

(D) Tuberculous

10. What is the amount of reducing sugar present if Benedict's qualitative test in urine gives orange precipitate?

(A) 0.5-1 g/dl

(B) 1-1.5 g/dl

(C) 1.5-2 g/dl

(D) 2-2.5 g/dl

11. Read the following statements about "Determining the end point of decalcification"

i) Mechanical or physical method can be used for determining the end point of Decalcification.

ii) Electrophoresis method can be used for determining the end point of Decalcification.

iii) Chemical method can be used for determining the end point of Decalcification.

iv) Radiology or X-ray method can be used for determining the end point of Decalcification.

(A) i, ii & iii are correct

(B) ii, iii & iv are correct

(C) i, ii & iv are correct

(D) i, iii & iv are correct

12. Regarding clearance angle in a plane wedge knife used in a Rotary microtome, pick the correct response.

(A) The clearance angle of a plane wedge knife is the angle between the block face and the knife's upper facet

(B) The clearance angle of a plane wedge knife is the angle between the two facets that form the cutting edge

(C) The clearance angle of a plane wedge knife is the angle between the block face and the knife's lower facet

(D) The clearance angle of a plane wedge knife is the angle between the knife center line and the surface of the block

13. Among the following statements, select the main advantage of using automated tissue processing machine.

(A) Automated tissue processors can process the tissue even when there is no technician around and even after working hours

(B) It allows the tissue to be processed even after expiry of the substances used for processing

(C) Automated tissue processing machines can work even when there is no electricity

(D) Automated tissue processing machines are handled only by very skilled highly trained technicians

14. Among the following statements, all are correct, Except

(A) Periodic acid-Schiff (PAS) stain is used to identify elastic tissue in sections

(B) von Kossa stain can be used for demonstration of the calcium

(C) Masson Fontana stain can be used for demonstration of Melanin

(D) Perls' Prussian blue (PPB) stain is a special stain that can be used to identify Hemosiderin.

15. All of the following statements about Frozen Sections are correct, Except

(A) Frozen sections can be used for demonstration of lipid

(B) Frozen sections are very thin sections which can be studied very easily

(C) Enzymes and antigens remain intact in Frozen sections and so they can be studied

(D) Frozen sections allow the pathologist to give a fast diagnosis.

16. Among the following fixatives, which one comes close to being an ideal fixative for "Fine Needle Aspiration Cytology (FNAC)"?

(A) 100% Methyl Alcohol

(B) 85% Isopropyl Alcohol

(C) 95% Acetone+ Ether Mixture

(D) 95% Ethyl Alcohol

17. Among the following statements select the incorrect one.

(A) May Grunwald-Giemsa stain is the best stain for air dried cytology slides

(B) Papanicolaou's stain is the best stain for wet fixed cytology slides

(C) Shorr's stain can be used for hormonal cytodiagnosis in cervical cytology

(D) Leishman's stain is the best stain for studying exfoliated cells in body fluids.

18. Read the following statements about Barr Body and select the correct response:

i) Barr bodies are the inactive X chromosome in females

ii) Barr bodies are seen as well-defined body which stains intensely with nuclear dyes inside the nucleus at the edge.

iii) Buccal smears are used for demonstration of Barr body

iv) People with XXY chromosomal pattern may have two Barr bodies

v) Crystal violet stain can be used to demonstrate Barr body

vi) Barr bodies are seen inside the nucleus of all cells in females

(A) i, ii & v are correct

(B) ii, iii & iv are correct

(C) iv, v & vi are correct

(D) iii, iv & v are correct

19. Read the following statements about "Liquid-based cytology" and select the best response:

i) Liquid-based cytology is a technique for collecting cytological samples which can be used to detect cervical cancer.

ii) Liquid-based cytology involves suspending cells from a sample in a preservative, then spreading a thin layer of the cells onto a slide for examination.

iii) Obtaining samples for liquid-based cytology is by taking cervical biopsy.

iv) Liquid-based cytology improves fixation, reduces obscuring factors and allows for standardized cell transfer. It also allows for additional testing of the sample, such as for Human Papillomavirus (HPV).

(A) i, ii & iii are correct

(B) i, ii & iv are correct

(C) ii, iii & iv are correct

(D) i, iii & iv are correct

20. The cell block (CB) technique refers to the processing of sediments, blood clots, or grossly visible tissue fragments from cytological specimens into paraffin blocks that can be cut and stained by the same methods used for histopathology. The technique brings additional tissue architectural information. All of the following statements about Cell Block technique are true, Except

(A) Diagnostic information: Cell blocks can provide important diagnostic information because they are similar to hematoxylin and eosin-stained histologic sections.

(B) Architectural features: Cell blocks can highlight architectural features that may not be easily identified with other cytologic preparations.

(C) Histology patterns: Cell blocks can help recognize histological patterns of diseases that conventional smears may not be able to identify reliably.

(D) The main disadvantage is that cell block slides cannot be stored for retrospective studies.

21. Which of the following statements is false?

(A) Red cells of partial D individual can make anti D when exposed to the conventional D antigen

(B) The D negative phenotype is most common in people of African ethnicity

(C) D negative phenotype is most common in people of European ethnicity

(D) Weak D phenotype is defined as a red cell with reduced amount of D antigen

22. In extravascular hemolysis

(A) The membrane attack complex (MAC) rapidly assembles and lyses the red cells before c3b and/or IgG opsonisation can induce phagocytosis

(B) It often results in tea coloured urine and can induce renal dysfunction

(C) Refers to the consumption of antibody and or c3b bound red cells by phagocytosis

(D) The red cell contents are directly released into the circulating blood

23. In Direct Antiglobulin Test (DAT), which of the following is false:
    (A) The strength of the observed agglutination is indirectly proportional to the amount of bound protein
    (B) When a patient has been recently transfused, a positive DAT result may be the first indication of a developing immune response.
    (C) Studies suggest that a positive DAT result in healthy blood donors may be a marker for risk of future development of malignancy.
    (D) DAT can be positive for IgG or complement in diseases associated with elevated serum globulin or blood urea nitrogen level

24. Cryoprecipitate is
    (A) Deficient in von Willebrand Factor, Factor VIII and Fibrinogen
    (B) It contains Factor II, Factor VII, Factor IX, Factor X and Factor XIII
    (C) One ml of cryoprecipitate contains 1IU of each coagulation factor
    (D) It contains around 80-120 U of Factor VIII, about 150 mg of fibrinogen and also contains fibronectin and Factor XIII

25. Which group system is X linked dominant?
    (A) Xg^a blood group system
    (B) ABO system
    (C) Lutheran system
    (D) SS phenotype

26. Name the term which defines the presence or absence of extra copies of a few chromosomes.
    (A) Extranuclear inheritance
    (B) Aneuploidy
    (C) Euploidy
    (D) Diploid

27. Which of the following chromosomal aberration shows pseudo dominance?
    (A) Deletion
    (B) Duplication
    (C) Inversion
    (D) Translocation

28. The term chromosome was coined by
    (A) Sutton
    (B) Waldeyer
    (C) Hofmeister
    (D) Watson

29. Which of the following claims concerning chromosomal end is correct?
    (A) The end of the chromosome are called satellite
    (B) The end of chromosome are called centromere
    (C) The end of chromosome are called telomere
    (D) The end of chromosome are called centriole

30. Which among the following is also called high throughput sequencing?
    (A) Sanger sequencing
    (B) Next generation sequencing
    (C) Polymerase chain reaction
    (D) Multiplex ligation dependant probe amplification

31. The term vaccine was coined by
    (A) Joseph Lister
    (B) Robert Koch
    (C) Louis Pasteur
    (D) Paul Ehrlich

32. Temperature and time required for sterilization in hot air oven is
    (A) 63°C for 30 mins
    (B) 160°C for 2 hrs
    (C) 120°C for 1 hr
    (D) 121°C for 20 mins

33. Which colour coded-bag is used for the disposal of expired medicines?
    (A) Yellow
    (B) Red
    (C) White
    (D) Blue

34. Which of the following is used for the sterilization of disposable plastic items?
    (A) Glutaraldehyde
    (B) Ethyl alcohol
    (C) Formaldehyde
    (D) Ethylene oxide

35. Which is the commonly used method for the treatment of microbiological lab waste?
    (A) Plasma pyrolysis
    (B) Autoclaving
    (C) Microwaving
    (D) Inertization

36. The object appears bright against a dark background in
    (A) Compound light microscope
    (B) Phase contrast microscope
    (C) Electron microscope
    (D) Dark ground microscope

37. India ink staining is used to demonstrate
    (A) Cell wall
    (B) Spore
    (C) Capsule
    (D) Flagella

38. All of the following are the examples of enriched media, except
    (A) Blood agar
    (B) Chocolate agar
    (C) Brain heart infusion broth
    (D) Deoxycholate citrate agar

39. Triple sugar iron agar medium contains all of the following carbohydrates, except
    (A) Glucose
    (B) Sucrose
    (C) Mannitol
    (D) Lactose

40. Which is the method used for determining minimum inhibitory concentration of an antibiotic?
    (A) Broth dilution method
    (B) Stoke's method
    (C) Kirby-Bauer disk diffusion
    (D) Direct disk diffusion

41. Which is the recommended transport medium for stool specimens suspected to contain *Vibrio cholerae*?
    (A) Venkatraman-Ramakrishnan medium
    (B) Selenite-F broth
    (C) Stuart's transport medium
    (D) Buffered glycerol saline medium

42. The most common commensal in human intestine is
    (A) *Lactobacilli*
    (B) *Neisseria*
    (C) *Micrococci*
    (D) *Bacteroides fragilis*

43. Man is the intermediate host in
    (A) Ascaris lumbricoides
    (B) Echinococcus granulosus
    (C) Ancylostoma duodenale
    (D) Wuchereria bancrofti

44. The infective form of Entamoeba histolytica
    (A) Trophozoite
    (B) Cyst
    (C) Precyst
    (D) Mature cyst

45. The causative agent of Kala-azar
    (A) Leishmania donovani
    (B) Giardia lamblia
    (C) Trichomonas vaginalis
    (D) Trypanosoma gambiense

46. Advantage of a thick smear for diagnosis of malaria includes all, except
    (A) Detection of parasites
    (B) Sensitive
    (C) Easy species identification
    (D) Quantification of parasitemia

47. The specimen for Onchocerca volvulus is best collected around
    (A) Early morning
    (B) Mid-day
    (C) Late evening
    (D) Mid-night

48. Which of the following is detected by salt floatation method?
    (A) round worm eggs
    (B) trematode eggs
    (C) protozoan cysts
    (D) tape worm eggs

49. All of the following are dimorphic fungi, except
    (A) Pencillium marneffei
    (B) Blastomyces dermatitidis
    (C) Asergillus flavus
    (D) Histoplasma capsulatum

50. Which is the stain used for the demonstration of capsule of Cryptococcus neoformans?
    (A) Nigrosin
    (B) Mucicarmine
    (C) Gomoris methenamine silver
    (D) Periodic acid – Schiff

51. The following is an example of Dermatophyte.
    (A) Rhizopus
    (B) Sporothrix schenckii
    (C) Epidermophyton species
    (D) Histoplasma capsulatum

52. The percentage of KOH used for skin scrapings and plucked hair samples
    (A) 20%
    (B) 40%
    (C) 30%
    (D) 10%

53. Which of the following is the culture technique used to study the intact morphology of fungus?
    (A) Teased mount
    (B) Slide culture
    (C) India ink
    (D) Gram stain

54. The fungus which is not cultivable
    (A) Mucor
    (B) Pneumocystis jirovecii
    (C) Rhizopus
    (D) Cryptococcus neoformans

55. Negri bodies are the characteristic of
    (A) Herpes simplex virus infection
    (B) Polio
    (C) Influenza
    (D) Rabies

56. All of the following are enveloped viruses, EXCEPT
    (A) Human Immunodeficiency Virus
    (B) Hepatitis B Virus
    (C) Polio Virus
    (D) Rabies Virus

57. Which among the following is a continuous cell line?
    (A) HeLa cell line
    (B) Monkey kidney cell line
    (C) Human amnion cell line
    (D) Chick embryo cell line

58. Primary viral infection may be diagnosed serologically by detection of

(A) Virus specific IgA

(B) Virus specific IgM

(C) Virus specific IgG

(D) Virus specific IgD

59. Ideal temperature for storage of specimens for less than 5 days for viral diagnosis:

(A) 4°C

(B) 25°C

(C) 37°C

(D) None of the above

60. Rota virus can be detected in stool by

(A) Detection of antigen by ELISA

(B) Electron microscopy

(C) Detection of viral RNA by PCR

(D) All of the above

61. Which of the following statement is/are correct about new glassware?

(i) It is alkaline in nature and should be soaked in dilute acid before use.

(ii) It is acidic in nature and should be soaked in dilute alkali before use.

(iii) It should be soaked in 5% hypochlorate solution before use.

(A) Only ii

(B) Only i

(C) Both i & iii

(D) Both ii & iii

62. Phenol belongs to which category of lab chemical?

(A) Flammable

(B) Toxic

(C) Explosive

(D) Corrosive

63. What is the term for the mixture that remains in the distillation flask after the distillation of water?
    (A) Distillate
    (B) Residue
    (C) Condensate
    (D) Azeotrope

64. Which of the following is a derived SI unit?
    (A) Meter (M)
    (B) Kilogram (Kg)
    (C) Second (S)
    (D) Pascal (Pa)

65. What is the formula to calculate Molarity?
    (A) Moles of solute / Liters of solvent
    (B) Moles of solute / Kilograms of solvent
    (C) Grams of solute / Liters of solution
    (D) Moles of solvent / Liters of solution

66. For the estimation of urine steroid, which specimen is more preferable?
    (A) Random sample
    (B) Early morning sample
    (C) 24 hr urine sample
    (D) All of the above

67. What is the key component of chromic acid cleaning solution?
    (A) Conc. HCl
    (B) Conc. H_2SO_4
    (C) Conc. HNO_3
    (D) Conc. CH_3COOH

68. What is the mechanism of action of heparin as an anticoagulant?
    (A) Inhibiting thrombin directly
    (B) Activating fibrinolysis
    (C) Enhancing antithrombin III activity
    (D) Block platelet aggregation

69. Which is the ideal urine preservative for bacterial culture?
(A) Conc.HCl
(B) Toluene
(C) Formalin
(D) Boric acid

70. Which of the following statements is/are correct?
(i) Refrigeration of blood specimen leads to false high potassium level.
(ii) Glycolysis can occur if fluoride–oxalate anticoagulant is not used.
(iii) Haemolysed sample can be used to prepare a pooled sample.
(A) Only ii & iii
(B) Only i & ii
(C) Only i & iii
(D) All of the above

71. For Hba1C estimation, blood should be collected in
(A) Green colour coded vacutainer
(B) Gray colour coded vacutainer
(C) Black colour coded vacutainer
(D) Purple colour coded vacutainer

72. Which of the following isotope is used to detect lifespan of RBC?
(A) Technitium
(B) Iodine
(C) Phosphorous
(D) Chromium

73. Metabolic acidosis is characterised by
(A) Decreased bicarbonate
(B) Increased bicarbonate
(C) Decreased p CO_2
(D) Increased p CO_2

74. High anion gap acidosis is not seen in
(A) Diabetic ketoacidosis
(B) Lactic acidosis
(C) Renal failure
(D) Renal tubular acidosis

75. Pancreatic juice contains the following enzymes for lipid digestion, EXCEPT

(A) Hormone sensitive lipase

(B) Phospholipase A2

(C) Cholesterol esterase

(D) Colipase

76. Random blood sample is collected from a person

(A) One hour after food

(B) Two hours after food

(C) Three hours after food

(D) No such time interval is prescribed

77. Ketone body synthesis takes place mainly in

(A) Skeletal muscles

(B) Erythrocytes

(C) Brain

(D) Liver

78. Which of the following molecules does not contain heme as a constituent?

(A) Cytochrome

(B) Peroxidase

(C) Myoglobin

(D) Ferroxidase

79. All of the following are considered as trace elements, EXCEPT

(A) Selenium

(B) Iodine

(C) Magnesium

(D) Flourine

80. The isoenzyme of creatine kinase elevated in myocardinal infarction is
(A) CK-MB
(B) CK-BB
(C) CK-MM
(D) All of the above

81. Which among the following enzymes are activated on dephosphorylation process?
(A) Glycogen phosphorylase
(B) HMG – CoA reductase
(C) Glycogen phosphorylase kinase
(D) Citrate lyase

82. Thyroid Stimulating Hormone (TSH) is measured after the administration of exogenous Thyrotropin Releasing Hormone (TRH) to assess the function of anterior pitutory gland. In this test, a delayed rise of TSH is seen in
(A) Primary hypothyroidism
(B) Secondary hypothyroidism
(C) Tertiary hypothyroidism
(D) Hyperthyroidism

83. Which is not a characteristic of genetic code?
(A) Specific
(B) Overlapping
(C) Degenerate
(D) Triplets

84. RNase H is used in
(A) Probe amplification
(B) Transcription mediated amplification
(C) Strand displacement amplification
(D) Nucleic acid sequence based amplification

85. The cDNA is prepared using the enzyme
(A) RNA polymerase
(B) DNA polymerase
(C) Reverse transcriptase
(D) Restriction endonuclease

86. Colourless refractile hexagonal plate like crystals are found in urine due to

(A) Cystine

(B) Tyrosine

(C) Hippuric acid

(D) Calcium sulfate

87. Which is not a feature seen in CSF of patients with cryptococcosis?

(A) Presence of mott cells

(B) Increased globulins

(C) Low glucose

(D) Decreased lymphocytes

88. Hypoacidity in stomach is seen in

(A) Zollinger-Ellison syndrome

(B) Gastric carcinoma

(C) Carcinoid tumour

(D) Multiple endocrine neoplasia

89. Factors responsible for the formation of urinary stones are all, except

(A) Obstruction of urine flow

(B) Urinary infection

(C) Hypoparathyroidism

(D) Hypervitaminosis D

90. Increased mobility of molecules in electrophoresis is seen in all conditions, except

(A) High resistance of electric field

(B) High voltage of electric field

(C) High charge of molecules

(D) Compact structure of molecules

91. In which type of chromatography techniques, the larger molecules will come out first, while the smaller molecules are retained in the column?
(A) Adsorption chromatography
(B) Gel filtration chromatography
(C) Thin layer chromatography
(D) Paper chromatography

92. Common location reagents (locating agents) used for visualisation of chromatography are,
i. Sulfuric Acid ii. Amido schwartz iii. Ninhydrin iv. Diphenylamine
(A) ii, iii and iv only
(B) ii and iii only
(C) iii and iv only
(D) i, iii and iv only

93. All are immunoassay techniques, except
(A) Radio immunoassay
(B) Electrophoresis
(C) Immunofluorescence
(D) ELISA

94. Which is the predominant class of antibodies in primary immune response?
(A) IgM
(B) IgG
(C) IgE
(D) IgA

95. All are the markers of cholestasis, except
(A) GGT
(B) ALP
(C) LDH
(D) 5'nucleotidase

96. _____ is the fraction of those without the disease that the test correctly predicts.
(A) Accuracy (B) Specificity
(C) Sensitivity (D) Precision

97. Which among the following is/are used as screening procedures for detection of drugs?

(i) Ferric chloride Test

(ii) Anion Gap

(iii) ECG

(iv) Chromatography

(A) All of the above
(B) iv only
(C) iii and iv only
(D) ii, iii and iv only

98. Automated methods used for specimen delivery are

(i) Pneumatic tube systems

(ii) Electric track vehicles

(iii) Courier Service

(iv) Mobile robots

(A) i, ii and iii only
(B) i and iii only
(C) i and iv only
(D) i, ii and iv only

99. _____ is a substance having homogeneous and well-established values used for the calibration of an apparatus, an assay method or assigning values to materials.

(A) Calibrator

(B) Reference material

(C) Pooled sample

(D) Control material

100. Elapsed time between two points on the laboratory's path of work through pre-examination, examination and post examination processes is known as

(A) Precious Time

(B) Turnaround Time

(C) Quality Time

(D) Throughput

_____

SPACE FOR ROUGH WORK

A

SPACE FOR ROUGH WORK