

11P/210/31

Set No: (1)

Question Booklet No..... **1149**

(To be filled up by the candidate by *blue/black ball-point pen*)

Roll No.

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Roll No.

(Write the digits in words).....

Serial No. of Answer Sheet.....

Day and Date.....

.....
(*Signature of Invigilator*)

INSTRUCTIONS TO CANDIDATES

(Use only *blue/black ball-point pen* in the space above and on both sides of the **Answer Sheet**)

1. Within 10 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope*.
3. A separate Answer Sheet is given. *It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.*
4. Write your *Roll Number and Serial Number of the Answer Sheet by pen* in the space provided above.
5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*
6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet No. on the Question Booklet.
7. Any changes in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
8. Each question in this Booklet is followed by four alternative answers. *For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet.*
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. *Note that the answer once filled in ink cannot be changed.* If you *do not wish to attempt* a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit *only OMR Answer Sheet* at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

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No. of Questions : 150

प्रश्नों की संख्या : 150

Time : 2 hours]

[Full Marks : 450

समय : 2 घण्टे]

[पूर्णांक : 450

Note : (1) Attempt as many questions as you can. Each question carries 3 (Three) marks. ***One mark will be deducted for each incorrect answer.*** Zero mark will be awarded for each unattempted question.

अधिकाधिक प्रश्नों को हल करने का प्रयत्न करें। प्रत्येक प्रश्न 3 (तीन) अंक का है। प्रत्येक गलत उत्तर के लिए एक अंक काटा जायेगा। प्रत्येक अनुत्तरित प्रश्न का प्राप्तांक शून्य होगा।

(2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.

यदि एकाधिक वैकल्पिक उत्तर सही उत्तर के निकट प्रतीत हों, तो निकटतम सही उत्तर दें।

1. Light waves projected on oil surface shows seven colours due to

- | | |
|------------------|------------------|
| (1) Polarization | (2) Diffraction |
| (3) Refraction | (4) Interference |

2. Pyruvate is accumulated by the deficiency of

- | | |
|----------------------------|-----------------------------|
| (1) Vitamin B ₁ | (2) Vitamin B ₂ |
| (3) Vitamin B ₆ | (4) Vitamin B ₁₂ |

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3. The common currency of energy in biological reaction is
(1) AMP (2) ATP (3) ADP (4) UDPG
4. Aerobic dehydrogenase has the prosthetic group
(1) ATP (2) NAD⁺ (3) FAD⁺ (4) NADP⁺
5. The uncoupling agent of oxidative phosphorylation is
(1) Barbiturates (2) Penicillin
(3) Antimycin A (4) Dicumarol
6. An example of extracellular enzyme is :
(1) Glucokinase (2) Hexokinase
(3) Glucose-6-phosphatase (4) Pepsin
7. The end product of purine catabolism in other mammals except man is
(1) Uric Acid (2) Allantoin
(3) Ammonia (4) Creatinine
8. The most prominent causes of dehydration is
(1) Excessive heat (2) Low intakes of water
(3) Frequent urination (4) Diarrhoea and vomiting
9. Zinc is a constitutes of
(1) Aldolase (2) Amylase
(3) Malate dehydrogenase (4) Carbonic anhydrase

10. Which of the following elements is required for the development of erythrocytes ?

- (1) Calcium
- (2) Magnesium
- (3) Iron
- (4) Potassium

11. Cream from milk is separated when it is churned due to

- (1) Viscous
- (2) Gravitational force
- (3) Centrifugal force
- (4) Electrostatic force

12. Electro-volt is a unit of

- (1) Momentum
- (2) Energy
- (3) Change
- (4) Velocity

13. Permanent hardness of water cannot be removed by

- (1) Boiling
- (2) Distillation
- (3) Passing through chlorine gas
- (4) adding sodium carbonate

14. Camphor can be easily purified by

- (1) Distillation
- (2) Sublimation
- (3) Crystallization
- (4) Solvent extraction

15. The most abundant halogen on the earth's crust is

- (1) Chlorine
- (2) Bromine
- (3) Iodine
- (4) None of the above

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16. Which of the following is used as anti-knocking substance ?

- (1) Tetramethyl lead (2) Tetraethyl lead
(3) Common salt (4) Alkyl magnesium halide

17. Alcoholic fermentation can be brought about by the action of

- (1) Diatane (2) Oxygen (3) Yeast (4) Carbon dioxide

18. Which of the following is used as a refrigerant

- (1) Ammonia (2) Ether
(3) Acetone (4) Nitrogen

19. The chemical substances present in bones and teeth is

- (1) Calcium sulphate (2) Calcium phosphate
(3) Calcium borate (4) Calcium chloride

20. If any reaction to be thermodynamically feasible the change in free energy should be

- (1) Negative (2) Positive
(3) Zero (4) None of the above

21. If the pressure on the solution of gas in equilibrium with the gas itself is increased, the solubility of gas will be

- (1) Decrease (2) Increase
(3) Remain the same (4) None of the above

22. When iron rusts its weight

- (1) Increases (2) Decreases
(3) Remains same (4) None of the above

23. Which of the following is not a natural polymer ?

- (1) Silk (2) Rubber (3) Plastic (4) Cellulose

24. Dry ice at room temperature gives

- (1) Water (2) CO₂ gas
(3) Salty water (4) Liquid CO₂

25. Radio carbon dating is used to find the age of

- (1) Building (2) Fossils (3) Babies (4) Rocks

26. Artificial rain is produced by seeding clouds with

- (1) Potassium iodide (2) Silver iodide
(3) Silver nitrate (4) Copper sulphate

27. Hydrolysis of oils and fats by alkali is known as

- (1) Hydroxylation (2) Hydrolysis
(3) Saponification (4) Esterification

28. Coloured glasses for goggles contain

- (1) Ferrous oxide (2) Lanthanide oxide
(3) Nickel oxide (4) Ferric oxide

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29. For welding the gas is used

- | | |
|--------------|---------------|
| (1) Methane | (2) Ethane |
| (3) Ethylene | (4) Acetylene |

30. Malachite is the mineral of

- | | |
|-------------|---------------|
| (1) Copper | (2) Iron |
| (3) Calcium | (4) Magnesium |

31. The drugs caffeine and nicotine are

- | | |
|---------------|-----------------|
| (1) Steroids | (2) Cortisones |
| (3) Alkaloids | (4) Mild alkali |

32. The particle that initiates fission reaction is

- | | |
|--------------|--------------|
| (1) Electron | (2) Proton |
| (3) Neutron | (4) Positron |

33. Lithium shows diagonal relationship with

- | | |
|--------------|-------------------|
| (1) Sodium | (2) Magnesium |
| (3) Berilium | (4) None of these |

34. The molecules responsible for storing the genetic code are

- | | |
|-------------|-----------------|
| (1) Protein | (2) Chromosomes |
| (3) RNA | (4) DNA |

35. Salk Vaccine is used against

- | | |
|------------------|---------------|
| (1) Polio | (2) Small pox |
| (3) Tuberculosis | (4) Measles |

36. The species become extinct most easily by

- (1) Deforestation
- (2) Urbanization
- (3) Sliding of hills
- (4) Heavy rains

37. Rf value is related to

- (1) TLC
- (2) CLC
- (3) IEC
- (4) GFC

38. The techniques commonly used to estimate the concentration of plasma protein

- (1) Double immunodiffusion
- (2) Simple immunodiffusion
- (3) ELISA
- (4) None of the above

39. Nucleic acid strongly absorb UV light at

- (1) 250 nm
- (2) 260 nm
- (3) 270 nm
- (4) 300 nm

40. A cosmid is a

- (1) Circular DNA
- (2) Plasmid with unique 'cos' site
- (3) Larger plasmid
- (4) Smaller plasmid

41. Fielgen staining is an identifying feature for

- (1) Unicellular organisms
- (2) Chromosomes/DNA
- (3) Nucleus
- (4) Nucleolus

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42. Which of the following is a template dependent enzyme ?

- | | |
|-----------------------|--------------------|
| (1) DNA polymerase | (2) RNA polymerase |
| (3) Oligonucleotidase | (4) DNA ligase |

43. BOD is a useful parameter to study

- | | |
|---------------------|----------------------|
| (1) Air pollution | (2) Soil pollution |
| (3) Water pollution | (4) All of the above |

44. Eutrofication is mainly caused by

- (1) Sulphates and Nitrates
- (2) Nitrites and Nitrates
- (3) Carbonates and Sulphates
- (4) Carbonates and Nitrates

45. Xenobiotics are

- | | |
|-----------------------|-----------------------------|
| (1) Natural compounds | (2) Food materials |
| (3) Protein | (4) Non-naturally occurring |

46. AZT (Azidothymidine) is an

- | | |
|--------------------|----------------------|
| (1) Biocatalyst | (2) Antibiotics |
| (3) Anti-AIDS drug | (4) Anabolic hormone |

47. Penicillin a potent antibiotic acts by destroying other organisms

- | | |
|-----------------------|--------------------------|
| (1) DNA formation | (2) Cell wall formation |
| (3) Protein synthesis | (4) RNA synthesis system |

48. Which of the following growth curve is represented by bacterial cultures ?

- (1) S-Shaped
- (2) V-Shaped
- (3) J-Shaped
- (4) Linear shaped

49. Transgenes are

- (1) Proteins
- (2) Transferable genes
- (3) Foreign gene
- (4) Bacteriophage

50. Polymerase chain reaction (PCR) was invented by

- (1) Werner Arber
- (2) Kary Mullis
- (3) Hamilton Smith
- (4) Harbert Boyer

51. A metacentric chromosomes will appear at anaphase as

- (1) L-Shaped
- (2) W-Shaped
- (3) V-Shaped
- (4) Y-Shaped

52. An energy funding pathway which is resistant to cyanide is

- (1) Kerb's
- (2) Glycolysis
- (3) Entner-Duodoroff
- (4) Hexose monophosphate shunt

53. Most abundant protein in biosphere is

- (1) Keratin
- (2) Glycoprotein
- (3) Rubisco
- (4) None of above

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54. Which of the following is an energized nucleotide ?

- (1) GMP (2) dCMP (3) dCTP (4) dAMP

55. The percentage of mammalian DNA coding for protein is

- (1) 3% only (2) 4% only (3) 2% only (4) 1% only

56. Membrane bound ribosomes and free ribosomes differ

- (1) In the structure
(2) In their function
(3) In the type of protein synthesis
(4) All of the above

57. Fidelity of transcription as compared to translation is

- (1) Lower
(2) Higher
(3) Equal
(4) Depend on the pH of the nucleoplasm

58. The DNA intercalating antibiotics is

- (1) Mitomycin C (2) Actinomycin D
(3) Puromycin (4) Polmyxin B

59. The only polymerase found in nucleolus is

- (1) RNA Pol I (2) RNA Pol II
(3) RNA Pol III (4) RNA Pol I & III

60. Type of DNA Exhibiting left handed helix is/are

- (1) B type
- (2) A & B type
- (3) B & Z type
- (4) Z only

61. NADP is

- (1) An enzyme
- (2) A part of S-RNA
- (3) A Coenzyme
- (4) A part of t-RNA

62. Most of the enzyme secreted by cells are

- (1) Rich in lipoproteins
- (2) Stored
- (3) Active
- (4) Inactive

63. Abzymes are

- (1) Hydrolases
- (2) Antigen
- (3) Antibody
- (4) Proteases

64. An inhibitor and the enzyme usually bind by

- (1) Electrostatic bond
- (2) Tandoms force
- (3) Covalent bond
- (4) van der Waals' forces

65. Animals with ant eating habbits are called

- (1) Omnivorous
- (2) Carnivorous
- (3) Herbivorous
- (4) Myrmecophagous

66. Which type of cells are called neuroglial cells

- (1) Microglia
- (2) Oligodendroglia
- (3) Astecocytes
- (4) All of the above

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67. The sex linked genes are present in significant way on

- (1) X chromosomes
- (2) Y chromosomes
- (3) Autosomes
- (4) Homologous chromosomes

68. Heart is made of

- (1) Cardiac muscles
- (2) Longitudinal muscles
- (3) Horizontal muscles
- (4) Connective muscles

69. Excretion deals mainly with the disposal of

- (1) Dead haemoglobin
- (2) Fatty materials
- (3) Carbohydrate material
- (4) Nitrogenous materials

70. Hormones are destroyed mainly in

- (1) Liver
- (2) Heart
- (3) Stomach
- (4) Intestine

71. Placing of sperm artificially near uterus is called

- (1) Artificial Insemination
- (2) Artificial fertilization
- (3) Artificial embryo development
- (4) Parthenogenesis

72. Bolus of food undergoing digestion in alkaline medium is called

- (1) Chile
- (2) Chyme
- (3) Alkaline
- (4) Casein bolus

73. Optic chaisma is formed by the function of two

- (1) Olfactory nerves
- (2) Oculomotor nerves
- (3) Trochleas nerves
- (4) Optic nerves

74. The cones of retina eye are

- (1) Sensitive to coloured light only
- (2) Sensitive to colourless light only
- (3) Sensitive to both white and coloured light
- (4) Active in strong light and sensitive to both white and coloured light

75. The most polluted city in the world is

- (1) Los Angeles
- (2) Delhi
- (3) Paris
- (4) London

76. The possible beneficial effect of the grazing of animals is

- (1) Eradication of seeds
- (2) Removal of wild plants
- (3) Removal of wild animals
- (4) Addition of their excreta in the soil

77. Lichens involve two organisms

- (1) Virus and Bacteria
- (2) Algae and Bacteria
- (3) Algae and Mosses
- (4) Algae and Fungi

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78. Phospholipid synthesis occurs

- (1) Cytosolic ribosome
- (2) Rough ER
- (3) Smooth ER
- (4) Golgi body

79. Cardiolipin is a membrane lipid can be seen in

- (1) Mitochondria
- (2) Chloroplast
- (3) Bacteria
- (4) All of the above

80. Glycosylation of Protein occurs in

- (1) Golgi body
- (2) Mitochondria
- (3) Endoplasmic reticulum
- (4) All of the above

81. Beta oxidation pathway of fatty acid oxidation resembles

- (1) Kreb's cycle
- (2) Glycolysis
- (3) ETS
- (4) Calvin cycle

82. Glycine is unique in the sense

- (1) It is an uncreative amino acid
- (2) It is optically active
- (3) It is optically inactive
- (4) It has aromatic side chain

83. The amino acid found in the active site of enzyme is

- (1) Methionine
- (2) Lysine
- (3) Arginine
- (4) Histidine

84. Which of the following are natural antiseptic substances of our body ?

- (1) Urine
- (2) Blood
- (3) Mucus and tears
- (4) All of the above

85. Osteoporosis is

- (1) Weakening of Bones
- (2) Weakening of Gums
- (3) Weakening of Muscles
- (4) Weakening of Teeth

86. Gel filtration chromatography separates protein on the basis of

- (1) Charge
- (2) Size
- (3) Mass
- (4) Structure

87. The unique feature of enzyme Taq Polymerase used in PCR is

- (1) High speed
- (2) High fidelity
- (3) High thermal stability
- (4) Low thermal stability

88. Iso electric point is a point at which

- (1) The mass of protein is maximum
- (2) The net charge of protein zero
- (3) The speed of mobility is maximum
- (4) The protein loses structure

89. Anti bodies are produced against self RBC membrane protein is

- (1) Addison's disease
- (2) Autoimmune hemolytic anemia
- (3) Leukemia
- (4) Myocardial infraction

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90. The monoclonal antibody technique was developed by

- | | |
|--------------|--------------|
| (1) Wilkins | (2) Watson |
| (3) Milstein | (4) Jacobson |

91. Gall bodies are characteristic cytoplasmic structure of

- | | |
|-------------|------------------|
| (1) Th & Tc | (2) Tc |
| (3) B cells | (4) Plasma cells |

92. Plant absorb nitrates from soil and covert them into

- | | |
|--------------|-----------------------|
| (1) Urea | (2) Ammonia |
| (3) Nitrogen | (4) None of the above |

93. The source of hallucinogenic drug is

- | | |
|----------------|-----------------|
| (1) Alternaria | (2) Calviceps |
| (3) Rhizopus | (4) Aspergillus |

94. Hormone oxytocin at the time of birth acts on uterus by

- (1) Producing rhythmic movements in uterus
- (2) Increasing the movements of foetus
- (3) Reducing the lumen of uterus
- (4) Stimulating the smooth muscle to contract

95. Process of maintaining the composition of blood is called

- | | |
|-----------------------------|----------------------|
| (1) Blood plasma filtration | (2) Blood filtration |
| (3) Blood régulation | (4) Homeostasis |

96. Main function of Peyer's patches is

- (1) To help in digestion of protein
- (2) To absorb food
- (3) To manufacture RBC
- (4) To manufacture WBC

97. The protein are constituted by

- (1) Both L & D aminoacid
- (2) D amino acid only
- (3) L amino acid only
- (4) Depends on the type of protein

98. Proteins contain Regulatory sites called

- (1) Folding sites
- (2) Complementary sites
- (3) Clefts
- (4) Allosteric sites

99. The transport by channel protein is

- (1) Active
- (2) Passive
- (3) Both
- (4) None

100. Which of the following ion is important for t-RNA stabilization ?

- (1) Mn^{++}
- (2) Mg^{++}
- (3) Cl^-
- (4) Na^+

101. Pribnow Box (TATAAT) found in all

- (1) Promoters
- (2) Repressors
- (3) Eukaryotes
- (4) Prokaryotic promoters

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102. The most abundant type of RNA in the cell pool is

- (1) rRNA
- (2) mRNA
- (3) tRNA
- (4) All are found in equal ratios

103. Proteins at the time of degradation becomes joined to

- (1) Clathrin
- (2) Peptidase
- (3) Ubiquitin
- (4) SRP

104. The guanidino group is found in

- (1) Tryptophan
- (2) Leucine
- (3) RNA/DNA
- (4) Arginine

105. Which of the following is not an essential attribute that a biological molecule would need to be a useful genetic material ?

- (1) It must carry all of the information needed to direct the specific organization and metabolic activities of the cell
- (2) It must replicate accurately so that the information it contains is precisely inherited by the daughter cells
- (3) It must have highly repetitive DNA sequences
- (4) All are essential attributes of useful genetic material.

106. The Hershey and Chase experiment which offered evidence in support of DNA being the genetic material in bacteriophage made use of the following labelled components

- (1) Phosphorous and sulfur
- (2) Nitrogen and oxygen
- (3) Tritium
- (4) Hydrogen

107. Penta peptide has

- (1) 5 peptide bond
- (2) 4 peptide bond
- (3) 4 amino acids
- (4) 2 & 3 both

108. A 1mM aqueous HCL solution is diluted 1000 times. The pH of the solution would be approximately

- (1) 8
- (2) 7
- (3) 6
- (4) 5

109. Which one of the following vector can carry the longest piece of foreign DNA ?

- (1) Plasmids
- (2) Cosmids
- (3) Bacteriophage
- (4) Yeast artificial chromosome

110. A common target for antibiotics in bacteria is

- (1) Microsomes
- (2) Mesosomes
- (3) Ribosomes
- (4) Non of the above

111. Degeneracy of the genetic code means that

- (1) A given base triplet can code for more than one amino acid
- (2) There is no punctuation in the code sequence
- (3) The third base in a code is not important in coding
- (4) A given amino acid can be coded by more than one base triplet

112. Which is not the constituent of biomembrane ?

- (1) Sphingolipids
- (2) Phospholipids
- (3) Glycolipid
- (4) Triglyceride

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113. Anticancer drug, vincristine & vinblastin used in the treatment of leukemia are obtained from

- (1) Rauwolfia canescens (2) Rauwolfia serpentina
- (3) Catharanthus roseus (4) Azhadirachtu indica

114. Which of the following does not participate in the formation of antigen antibody complex ?

- (1) Hydrophobic bonds (2) Covalent bonds
- (3) Hydrogen bonds (4) van der Waals' forces

115. Immunoglobulins are proteins that exhibit

- (1) Primary structure (2) Secondary structure
- (3) Tertiary structure (4) Quaternary structure

116. The site of metabolism of xenobiotic in animal is

- (1) Brain (2) Liver
- (3) Kidney (4) Heart

117. The lagging strand is characterized by

- (1) A constant supply of RNA primer
- (2) Discontinuous synthesis of new strand
- (3) Replication of DNA in 5'—3' direction
- (4) All of the above

118. The separation of two DNA strand for replication is brought about by

- (1) DNA pol III (2) DNA helicase
- (3) DNA pol I (4) DNA ligase

119. The codon of mRNA and anticodon of tRNA recognise each other by pairing

- (1) 5'....3' of mRNA with 5'....3' of tRNA
- (2) 3'....5' of mRNA with 3'....5' of tRNA
- (3) 5'....3' of mRNA with 3'....5' of tRNA
- (4) In any of the above manner

120. Frame shift mutations are characterized by

- (1) Insertion or deletion of one or more base pairs in DNA
- (2) Insertion of one or more base pairs in DNA
- (3) Deletion of one or more base pairs in DNA
- (4) Replacement of purine by pyrimidine or vice-versa

121. Which is not a fibrous protein ?

- (1) IgG (2) Wool (3) Silk (4) Collagen

122. The precursors of oligosaccharide residues in glycoproteins are

- (1) Amino sugars (2) Nucleotide sugars
- (3) Glycoproteins (4) Hexoamine

123. The tertiary structure of a protein refers to the

- (1) Three-dimensional folding of the molecule
- (2) Sequence of the amino acids
- (3) Presence of alpha-helices and beta sheets
- (4) Interaction of one protein with another protein

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124. Denaturation of double stranded DNA

- (1) Involves its separation into single strands
- (2) Tends to occur more readily as the temperature of the DNA solution is decreased
- (3) Results in decrease in the absorption of light at 260 nm by the DNA solution
- (4) Cannot be reversed even if the salt concentration and the temperature of solution are adjusted appropriately

125. Cellular DNA replication

- (1) Is known as transcription
- (2) Requires the DNA double helix to be unwound
- (3) Occurs in the 3' to 5' direction
- (4) Employs an enzyme called DNA ligase

126. Repair of damaged DNA

- (1) Can occur spontaneously because of the nature of the chemical bonds in DNA
- (2) Can occur during normal replication of DNA
- (3) Is not amenable to genetic analysis
- (4) May not require enzymatic reaction

127. Transport of mRNA from the nucleus to the cytoplasm

- (1) Involves passage through nuclear pores
- (2) Is linked to translation of the protein encoded by the mRNA
- (3) Is in the 3' to 5' direction
- (4) Occurs with the spliceosomes bound to mRNA

128. A protein molecule binds a drug at two different sites. The method to evaluate the two binding constants and whether binding at one site influences binding at the other is by generating a
- (1) Lineweaver-Burk plot (2) Scatchard plot
(3) Arrhenius plot (4) None of the above
129. A patient develops vomiting and diarrhea after consumption of milk. His blood is found to have a low concentration of glucose than normal but a much higher concentration of reducing sugars. The urine gives positive test for galactose. What treatment would you recommend?
- (1) Low Fat diet (2) Low lactose diet
(3) Low protein diet (4) Low glucose diet
130. Amino acid that most often occurs at the active sites of enzymes and can be uncharged or positively charged depending on its' local environment
- (1) R (2) H (3) K (4) D
131. Lysine is an amino acid with three ionizable groups. These are the α -COOH, α -amino and ϵ -amino groups with pKa values of 2.2, 9.2 and 10.8, respectively. The isoelectric point (pI) for lysine is
- (1) 5.7 (2) 6.5 (3) 9.2 (4) 10.0
132. Immobilization of enzymes using entrapment method requires
- (1) Inclusion in microcapsules
(2) CNBr activation of sepharose
(3) Polyfunctional reagent like hexamethylene diisocyanate
(4) Radiation of polyvinyl alcohol

133. Isoleucine is derived from Threonine via 5 step metabolic pathway. Threonine deaminase is crucial enzyme which is allosterically regulated by Isoleucine through feedback inhibition. If substrate saturation curve in presence and absence of isoleucine are compared, one can find that

- (1) The substrate saturation curve will be sigmoid and will shift to right in presence of isoleucine.
- (2) The substrate saturation curve will be sigmoid and will shift to left in presence of isoleucine
- (3) The substrate saturation curve will be linear and will shift to right in presence of isoleucine
- (4) The substrate saturation curve will be linear and will shift to left in presence of isoleucine

134. Which enzyme is not involved as biosensor ?

- (1) Glucose oxidase
- (2) Urease
- (3) Alcohol oxidase
- (4) Amylase

135. Which one of the following is formed element of blood ?

- (1) Erythrocytes
- (2) Leucocytes
- (3) Thrombocytes
- (4) All of these

136. Blood is classified into four main groups on the basis of the nature of ?

- (1) Erythrocyte
- (2) Leucocyte
- (3) Thrombocyte
- (4) All of the above

137. Which is not the biofuel ?

- (1) Bioethanol
- (2) Biodiesel
- (3) Biohydrogen
- (4) Biocompost

138. In protein disulphide bond can be cleaved by
- (1) SDS (2) Alkali
(3) Acid (4) β -mercaptoethanol
139. One of the following spectroscopies is efficiently used to determine the 3-D structure of the macromolecule in solution
- (1) Infra red (2) X-ray diffraction
(3) NMR (4) Ultraviolet
140. DNA is present in the form of nucleosomes in
- (1) An eukaryotic cell (2) A yeast cell
(3) Virus (4) Bacteria
141. The mechanisms regulating the decision between lysis and lysogeny for bacteriophage lamda have been described as 'genetic switch'. Which of the following statements are true of the systems ?
- (1) The cl and cro genes are transcribed in opposite directions
(2) The mRNAs encoding cl and cro protein are synthesized using the same strand of DNA as template
(3) Synthesis of cl is not stimulated by its binding to $O_R 1$ and $O_R 2$
(4) Of the three O_R sites in the lambda genome, cl has greatest affinity for $O_R 1$
142. A double stranded DNA molecule with 6390 base pairs long will have the following number of turns
- (1) 639 (2) 63.9 (3) 6.39 (4) 1.95

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143. Eukaryotic DNA

- (1) Takes part directly in protein synthesis by coming out of the nucleus
- (2) Takes part indirectly in protein synthesis, the DNA itself stays in the nucleus
- (3) Has nothing to do with protein synthesis but involves in replication
- (4) Is involved in protein synthesis that takes place in the nucleus

144. Which one of the following is essential for bacteria for DNA repair and recombination ?

- (1) DNA E protein
- (2) Rec A protein
- (3) Thymidine kinase
- (4) Chaperone proteins

145. The *lac* repressor

- (1) Is a DNA binding protein
- (2) Is induced by exposure of a bacterial cell to lactose
- (3) Uses the same promoter as the *lac Z* gene
- (4) Can form alternative stem-loop structures

146. DNA synthesis begins at a

- (1) Single location in the adenovirus genome
- (2) Single location in *E. coli*
- (3) Single location in yeast
- (4) Site that is G -C rich in *E. coli*

147. The enzyme lysozyme is used in the treatment of

- | | |
|-----------------------|--------------------|
| (1) Coronary diseases | (2) Liver diseases |
| (3) Leukaemia | (4) Eye diseases |

148. The group transferring coenzyme is

- | | |
|----------------------|---------|
| (1) DPN | (2) TPN |
| (3) FAD ⁺ | (4) CoA |

149. The absorption of glucose is interfered by the deficiency of

- | | |
|----------------------|----------------------|
| (1) Vitamin A | (2) Thiamine |
| (3) Mg ⁺⁺ | (4) Fe ⁺⁺ |

150. Which of the hormones decreased blood sugar level ?

- | | |
|---------------------|-----------------|
| (1) Glucagon | (2) Epinephrine |
| (3) Glucocorticoids | (4) Insulin |

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण-पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली/काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख ले कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्न-पुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्न-पुस्तिका पर अनुक्रमांक संख्या और ओ० एम० आर० पत्र संख्या की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
6. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
7. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिये आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिये केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो सम्बन्धित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिये इस पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा अंतिम खाली पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ० एम० आर० उत्तर-पत्र परीक्षा भवन में जमा करें।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की भागी होगा / होगी।