

# MSc Biochemistry

# 2187

15P/210/30

Question Booklet No. ....

880

(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 OMR 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 also Roll No. and OMR Sheet No. on the Question Booklet.
7. Any change 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 ball-point 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 mark).*
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 the 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.

[उपर्युक्त निर्देश हिन्दी में अन्तिम आवरण-पृष्ठ पर दिये गए हैं।]

[No. of Printed Pages : 28+2]





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**No. of Questions/प्रश्नों की संख्या : 150**

**Time/समय : 2 Hours/घण्टे**

**Full Marks/पूर्णांक : 450**

**Note :** (1) Attempt as many questions as you can. Each question carries 3 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 अंक का है। प्रत्येक गलत उत्तर के लिए एक अंक काटा जाएगा। 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. The process by which the particles move a region of higher concentration to a lower concentration to spread uniformity is called as

(1) osmosis

(2) diffusion

(3) transportation

(4) conduction

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(P.T.O.)



2. The force with which the surface molecules of a liquid are held together is called
- |                      |                     |
|----------------------|---------------------|
| (1) tensile strength | (2) power           |
| (3) cohesive         | (4) surface tension |
3. Chief cells secrete
- |          |         |                        |             |
|----------|---------|------------------------|-------------|
| (1) NaOH | (2) HCl | (3) NaHCO <sub>3</sub> | (4) enzymes |
|----------|---------|------------------------|-------------|
4. If a reaction is at equilibrium, the free energy,  $\Delta G$  is equal to
- |       |       |       |        |
|-------|-------|-------|--------|
| (1) 1 | (2) 2 | (3) 0 | (4) 10 |
|-------|-------|-------|--------|
5. Which are the non-covalent bonds responsible for the high melting and boiling points of water?
- |                       |                                |
|-----------------------|--------------------------------|
| (1) H-bonds           | (2) van der Waals' force       |
| (3) hydrophobic force | (4) electrostatic interactions |
6. Which of the following is a suicide enzyme?
- |                    |         |
|--------------------|---------|
| (1) Glucokinase    | (2) LDH |
| (3) Cyclooxygenase | (4) GOT |
7. Enzyme trypsin converts
- |                               |                               |
|-------------------------------|-------------------------------|
| (1) amino acids into proteins | (2) glucose into glycogen     |
| (3) starch into sugar         | (4) proteins into amino acids |

8. Why is red wine particularly beneficial?
- (1) It contains vitamins (2) It contains proper carbohydrate  
(3) It contains antioxidants (4) It contains proteins
9. Which of the following is not useful in identifying the amino-terminal residue of a protein?
- (1) Cyanogen bromide (2) Dansyl chloride  
(3) Fluorodinitrobenzene (4) Phenyl isothiocyanate
10. Which of the following amino acid residues is likely to be found on the inside of a water-soluble protein?
- (1) His (2) Asp (3) Ile (4) Arg
11. The water soluble part of starch is
- (1) amylose (2) amylopectin (3) pectin (4) glycogen
12. The resistance experience by one layer of a liquid in moving over another layer is called
- (1) friction (2) viscosity (3) force (4) torque
13. Which of the following is true?
- (1) Apoenzyme - coenzyme = holoenzyme  
(2) Apoenzyme + coenzyme = holoenzyme  
(3) Apoenzyme = holoenzyme  
(4) Coenzyme = holoenzyme

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14. Which of the following is the important reactive group of glutathione in its role as an antioxidant?
- (1) Hydroxyl group                                      (2) Sulfhydryl group  
(3) Keto group    (4) Carboxyl group
15. Which of the following is not a dietary antioxidant?
- (1) Vitamin C    (2) Vitamin E  
(3) Vitamin K    (4) Beta-carotene
16. If the average molecular weight of one amino acid is 110, the molecular weight of a peptide made up of 10 amino acids is expected to be
- (1) 1100                                    (2) 744                                    (3) 938                                    (4) 876
17. How many molecules of vitamin A are formed from one molecule of  $\beta$ -carotene?
- (1) 1    (2) 2    (3) 3    (4) 4
18. In photosynthesis and cellular respiration processes, the catalyst cytochrome oxidase utilizes
- (1) Cu    (2) Fe    (3) Cu and Fe    (4) Ni
19. Who gave the name 'nucleic acid'?
- (1) Altmann    (2) Franklin    (3) Watson    (4) Crick

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- 20.** The offsprings obtain how much genes from father?  
(1) 25%                      (2) 75%                      (3) 50%                      (4) 100%
- 21.** A child with IQ 140 belongs to which category?  
(1) Genius    (2) Superior  
(3) Most superior                                      (4) Average
- 22.** In which era life was evolved?  
(1) Precambrian era                                      (2) Mesozoic era  
(3) Cenozoic era    (4) Paleozoic era
- 23.** A specific characteristic of class insects is  
(1) two pairs of legs                                      (2) three pairs of legs  
(3) four pairs of legs                                      (4) five pairs of legs
- 24.** Sleeping sickness occurs due to  
(1) euglena    (2) plasmodium  
(3) crustacean    (4) protozoa
- 25.** Silverfish is  
(1) insect                      (2) fish                      (3) crustacean                      (4) bird

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- 26.** Hydra moves with fast speed by
- (1) looping (2) walking on foot  
(3) creeping (4) somar salting
- 27.** On which segment of the body, the earthworm possesses male reproductive organ?
- (1) Segment 18 (2) Segment 19  
(3) Segment 20 (4) Segment 21
- 28.** Tendons connect
- (1) bone to bone (2) bone to muscle  
(3) muscle to muscle (4) skin to muscle.
- 29.** Which of the following is not an enzyme?
- (1) Maltase (2) Amylose (3) Trypsin (4) Lipase
- 30.** Most of the members of vitamin B complex are primarily used as
- (1) hormones (2) enzymes  
(3) coenzymes (4) digestive elements
- 31.** Chloride shift in blood is essential for the transport of which gas?
- (1)  $O_2$  (2)  $N_2$  (3)  $CO_2$  (4) CO

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32. Tricuspid valve exists between

- (1) right auricle and ventricle      (2) both auricles  
(3) both ventricles      (4) left auricle and ventricle

33. Haptens are

- (1) small molecules      (2) large molecules  
(3) medium size molecules      (4) inclusion bodies

34. How much protein is there in HDL?

- (1) 10%      (2) 20%      (3) 50%      (4) 35%

35. One letter used to denote tryptophan is

- (1) W      (2) R      (3) L      (4) K

36. Deamination of cytosine leads to

- (1) thymine      (2) uracil      (3) guanine      (4) adenine

37. More than one codon can specify the same amino acid. This is called

- (1) degeneracy      (2) regeneracy      (3) continuity      (4) universality

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38. If the cytosine content of a duplex is 30% of the total bases, the adenine content would be  
(1) 10%                      (2) 20%                      (3) 30%                      (4) 60%
39. Which of the immunoglobulins crosses the placenta and reaches to fetus?  
(1) IgA                      (2) IgM                      (3) IgG                      (4) IgE
40. Light reactions take place in  
(1) stroma    (2) grana  
(3) endoplasmic reticulum                      (4) Golgi body
41. In cell cycle, the pre-DNA synthesis phase is termed as  
(1) G2 phase                      (2) S phase                      (3) G1 phase                      (4) M phase
42. Crossing-over takes place in which stage?  
(1) Pachytene                      (2) Zygotene                      (3) Leptotene                      (4) Diplotene
43. The mixture of  $H_2$  and CO is an industrial fuel known as  
(1) fuel gas    (2) water gas  
(3) industrial gas    (4) vapour

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44. On spot treatment of environment pollutant is known as  
(1) *In situ* (2) *Ex situ*  
(3) local (4) transported
45. Endorphin is a  
(1) lipid (2) protein  
(3) carbohydrate (4) nucleic acid
46. The loss or addition of one or more chromosomes is known as  
(1) polyploidy (2) aneuploidy  
(3) euploidy (4) aploidy
47. Who said, "ontogeny recapitulates ontogeny" ?  
(1) Robert Hook (2) Haeckel  
(3) Baltimore (4) Crick
48. The science of improving human stock is known as  
(1) genetics (2) biology  
(3) eugenics (4) animal science

**49.** Adenovirus contains

- (1) double-stranded DNA, nonenveloped
- (2) double-stranded DNA, enveloped
- (3) double-stranded RNA, nonenveloped
- (4) single-stranded RNA, enveloped

**50.** Any gene that is placed into a plasmid is called

- (1) small plasmid
- (2) DNA
- (3) insert
- (4) trans gene

**51.** A single stranded DNA/RNA molecule used to detect the presence of a complementary nucleic acid is called

- (1) sensor
- (2) probe
- (3) insert
- (4) detector

**52.** Oxidative stress is caused due to

- (1) production of excessive free radicals
- (2) production of excessive HCl in stomach
- (3) indigestion
- (4) low BMR

53. Adjuvants are the agents that

- (1) decrease immunogenicity of an antigen
- (2) increase immunogenicity of an antigen
- (3) decrease immunity
- (4) increase immunity

54. Confining the enzyme molecules to a distinct phase is known as

- (1) immobilisation
- (2) purification
- (3) adsorption
- (4) absorption

55. An analytical device which employs a biological material to specifically interact with an analyte and measures the generated electrical signal by transducer is called as

- (1) electrometer
- (2) biosensor
- (3) conductor
- (4) amplifier

56. The disease of tomato is caused by

- (1) *Alternaria solani*
- (2) *Fusarium oxysporium*
- (3) *Helminthosporium sativum*
- (4) *Erysiphe polygoni*

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57. 'Caryopsis' is the fruit in member of the family.
- (1) Fabaceae (2) Asteraceae  
(3) Poaceae (4) Apiaceae
58. Which of the following antibiotics inhibits the translation in eukaryotes?
- (1) Tetracyclin (2) Puromycin  
(3) Penicillin (4) Chloromycetin
59. Polymerase chain reaction was developed by
- (1) Watson and Crick (2) Har Govind Khorana  
(3) Albert Smith (4) Kary Mullis
60. The first immunoglobulin synthesized by the fetus is
- (1) IgA (2) IgG (3) IgM (4) IgE
61. When atoms or ions are missed or misplaced in a crystal, the defects are called as
- (1) surface defect (2) point defect  
(3) unit cell defect (4) displacement
62. The molarity of a 250 ml solution containing 0.1 mole of NaOH would be
- (1) 0.1 mole/litre (2) 0.2 mole/litre  
(3) 0.3 mole/litre (4) 0.4 mole/litre

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63. After dissolution of iodine in a solution, the entropy
- (1) increases
  - (2) decreases
  - (3) first increases and then decreases
  - (4) first decreases and then increases
64. The order of reaction for radioactive decay is
- (1) first
  - (2) second
  - (3) third
  - (4) zero
65. What is produced when ethanol vapours are passed over alumina at 600 K?
- (1) Ethane
  - (2) Ethene
  - (3) Acetylene
  - (4) Methane
66. The metal oxide which is known as philosopher's wool
- (1) ZnO
  - (2) CuO
  - (3) FeO
  - (4) CdO
67. Give one example of substance used in hair dye
- (1) amino phenol
  - (2) cyclomethicone
  - (3) butylene glycol
  - (4) propylene glycol
68. 1 mM is equal to
- (1) 1 nmole/ml
  - (2) 1  $\mu$ mole/ml
  - (3) 1 pmole/ml
  - (4) 1 fmole/ml



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69. The sum of  $pK_a$  and  $pK_b$  is equal to  
(1) 12                      (2) 14                      (3) 10                      (4) 7
70. How many different stereoisomers are possible with an aldohexose?  
(1) 4                      (2) 8                      (3) 12                      (4) 16
71. A DNA has  $2.1 \times 10^5$  nucleotides in its coding strand. The number of codons would be  
(1)  $7 \times 10^4$                       (2)  $6 \times 10^3$                       (3)  $7 \times 10^3$                       (4)  $4 \times 10^3$
72. In which of the following compounds C—H bond length is minimum?  
(1) Ethane                      (2) Ethene  
(3) 1,2-dichloroethene                      (4) 1,2-dichloroethane
73. Freons are  
(1) chlorofluorocarbons                      (2) aromatic molecules  
(3) unsaturated fats                      (4) carbohydrates
74. Cryophytic algae grow on  
(1) rocks                      (2) water                      (3) soil                      (4) ice and snow

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75. An animal which is unicellular, microscopic with no tissues is called as  
(1) Metazoa      (2) Protozoa      (3) Chordata      (4) virus
76. The organism which contains both the chloroplast and flagella is  
(1) Paramecium      (2) Amoeba  
(3) Euglena      (4) Trypanosoma
77. Which one is commonly known as 'pond silk' ?  
(1) Ulothrix      (2) Spirogyra  
(3) Chara      (4) Batrachospermum
78. Litmus is a natural dye obtained from  
(1) algae      (2) fungi      (3) lichens      (4) corals
79. Bordeaux mixture consists of  
(1) lime and calcium sulphate      (2) sulphur and lime  
(3) copper sulphate and lime      (4) copper sulphate and sulphur
80. The nurse cells are present in the sporogonium of  
(1) Riccia      (2) Marchantia  
(3) Angiosperms      (4) Gymnosperms



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81. Which of the following is classified as an eastern cycad?  
(1) Dioon                      (2) Stangeria                      (3) Ceratozamia                      (4) Zamia
82. Which of the following cells are present only in sponges?  
(1) Erythrocytes                      (2) Blastocytes  
(3) Neurons                      (4) Funnel cells
83. Which of the following is called 'The Lantern of Aristotle' ?  
(1) Starfish                      (2) Sea anemone                      (3) Sea archin                      (4) Hydra
84. 'Hipnotoxin' is found in  
(1) Nematocysts                      (2) Sponges  
(3) Ascaris                      (4) Protozoans
85. The common feature of rennin, amylase and trypsin is that they are  
(1) proteins                      (2) vitamins  
(3) nucleic acids                      (4) carbohydrates
86. The vitamin needed for maturation of erythrocytes is  
(1) C                      (2) B<sub>12</sub>                      (3) D                      (4) K

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87. Light reaction in photosynthesis produces
- (1) oxidising entity (2) reducing entity  
(3)  $\text{CO}_2$  (4) glucose
88. RuDP carboxylase can utilise following as a substrate
- (1)  $\text{CO}_2$  (2)  $\text{O}_2$  (3)  $\text{O}_2$  and  $\text{CO}_2$  (4) water
89. The molecule which binds to the active site in an enzyme is called
- (1) substrate (2) activator  
(3) inactivator (4) non-competitive inhibitor
90. The genetic material of Simian Virus 40 (SV 40) is
- (1) DNA (2) RNA  
(3) RNA-DNA hybrid (4) peptidonucleic acid
91. The fibronectin is a
- (1) nucleoprotein (2) glycoprotein  
(3) lipoprotein (4) phosphoprotein
92. The red pigment found in the ripe tomatoes are called
- (1) lycopene (2) leukoplast (3) chloroplast (4) carotene

93. Replication takes place in

- |                |                           |
|----------------|---------------------------|
| (1) cytoplasm  | (2) nucleus               |
| (3) Golgi body | (4) endoplasmic reticulum |

94. The transcription in prokaryotes is catalyzed by

- |                       |                        |
|-----------------------|------------------------|
| (1) RNA polymerase I  | (2) DNA polymerase II  |
| (3) RNA polymerase II | (4) DNA polymerase III |

95. Nucleoli are rich in

- |         |                   |
|---------|-------------------|
| (1) RNA | (2) carbohydrates |
| (3) DNA | (4) fatty acids   |

96. EFG factor is also called as

- |                          |                 |
|--------------------------|-----------------|
| (1) aminoacyltransferase | (2) oxidase     |
| (3) hydrolase            | (4) translocase |

97. Lac Operon is

- |                                  |                        |
|----------------------------------|------------------------|
| (1) inducible-repressible system | (2) repressible system |
| (3) inducible system             | (4) sluggish system    |

98. Polytene cells are destined to die because they are

- |                                  |                               |
|----------------------------------|-------------------------------|
| (1) unable to undergo mitosis    | (2) unable to undergo meiosis |
| (3) unable to undergo maturation | (4) short lived               |

99. Which one from the following is an alkaloid?

- |                 |                  |
|-----------------|------------------|
| (1) Menthol     | (2) Morphine     |
| (3) Anthocyanin | (4) Benzoquinone |

100. Artemisin, a plant product, is used against

- |                |                |
|----------------|----------------|
| (1) filariasis | (2) ascariasis |
| (3) malaria    | (4) cancer     |

101. The chemical nature of penicillin is

- |                    |                   |
|--------------------|-------------------|
| (1) polyene        | (2) peptide       |
| (3) aminoglycoside | (4) spiro lactone |

102. Nitrogenase is protected from  $O_2$  by

- |               |                   |
|---------------|-------------------|
| (1) $N_2$     | (2) haemoglobin   |
| (3) myoglobin | (4) leghemoglobin |

103. Satellite DNA is made up of

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| (1) tandemly repeated sequences | (2) unique sequences of DNA         |
| (3) minichromosomes             | (4) interspersed repeated sequences |

104. Protein transport into mitochondria takes place

- |                        |                              |
|------------------------|------------------------------|
| (1) co-translationally | (2) post-translationally     |
| (3) via peroxisomes    | (4) through ER-Golgi pathway |

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- 105.** Collagen is rich in
- |                |                    |
|----------------|--------------------|
| (1) histidine  | (2) hydroxyproline |
| (3) tryptophan | (4) alanine        |
- 106.** Measles is caused by
- |                   |                    |
|-------------------|--------------------|
| (1) bacteria      | (2) Puccinia virus |
| (3) Rubella virus | (4) fungi          |
- 107.** What would be a likely explanation for the existence of pseudogenes?
- (1) Gene duplication
  - (2) Gene duplication and mutation events
  - (3) Evolutionary pressure
  - (4) Unequal crossing-over
- 108.** Which of the following modification leads to protein degradation?
- |                    |                     |
|--------------------|---------------------|
| (1) Acetylation    | (2) Phosphorylation |
| (3) Ubiquitination | (4) Methylation     |
- 109.** During mismatch repair in *E. coli*, the parental strand is recognized by
- |                            |                           |
|----------------------------|---------------------------|
| (1) single-stranded break  | (2) glycosylated adenines |
| (3) double-stranded breaks | (4) methylated adenines   |

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- 110.** Which of the following is a role of gRNA?
- (1) Self-splicing (2) Polyadenylation  
(3) RNA splicing (4) Chemical modification of rRNA
- 111.** Most protection against viral disease in the body takes place through the activities of
- (1) interferon molecules (2) penicillin molecules  
(3) antigen molecules (4) antibody molecules
- 112.** Skin cancer is induced by which type of DNA damage caused by exposure to harmful UV rays in sunlight?
- (1) Depurination (2) Deamination  
(3) Pyrimidine dimer formation (4) Alkylation
- 113.** Cesium (Cs) belongs to
- (1) s1-block (2) s2-block (3) p2-block (4) p5-block
- 114.** Which one of the following reaction intermediates does not have a planar structure?
- (1) Alkyl carbocation (2) Alkyl carbanion  
(3) Alkyl free radical (4) Singlet carbene

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**115.** The master brake of the cell cycle is

- |                     |         |
|---------------------|---------|
| (1) cyclin proteins | (2) p21 |
| (3) Rb protein      | (4) p7  |

**116.** Monopolin is a

- |                          |                                      |
|--------------------------|--------------------------------------|
| (1) complex carbohydrate | (2) mitosis specific protein complex |
| (3) lipid                | (4) meiosis specific protein complex |

**117.** The pyrimidine bases present in DNA are

- |                          |                          |
|--------------------------|--------------------------|
| (1) cytosine and adenine | (2) cytosine and guanine |
| (3) cytosine and thymine | (4) cytosine and uracil  |

**118.** Germ-line cells give rise to

- |                    |                   |
|--------------------|-------------------|
| (1) eggs           | (2) sperms        |
| (3) eggs or sperms | (4) somatic cells |

**119.** Which of the following is most stable ecosystem?

- |            |                |           |            |
|------------|----------------|-----------|------------|
| (1) Forest | (2) Grass land | (3) Ocean | (4) Desert |
|------------|----------------|-----------|------------|

**120.** Maximum biodiversity occurs at

- |           |             |               |             |
|-----------|-------------|---------------|-------------|
| (1) poles | (2) equator | (3) temperate | (4) tropics |
|-----------|-------------|---------------|-------------|

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**121.** The innate immune systems include

- (1) macrophages, neutrophils and dendrites
- (2) macrophages, neutrophils and RBCs
- (3) RBCs, chief cells and dendrites
- (4) mast cells,  $\beta$ -cells and dendrites

**122.** Adaptive immunity is mediated by

- (1) T-lymphocytes
- (2) B-lymphocytes
- (3) Both T- and B-lymphocytes
- (4) neutrophils

**123.** Antibodies chemically are

- (1) proteins
- (2) polysaccharides
- (3) glycoproteins
- (4) complex lipids

**124.** The biologically predominant form of DNA is

- (1) left-handed Z-DNA
- (2) right-handed B-DNA
- (3) right-handed A-DNA
- (4) left-handed A-DNA

**125.** UAA, UAG and UGA encode for

- (1) 2 amino acids
- (2) 3 amino acids
- (3) 9 amino acids
- (4) No amino acids

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- 126.** Hydrophobic drug transporters found in plasma membrane are kept under
- |                   |                         |
|-------------------|-------------------------|
| (1) channels      | (2) pumps               |
| (3) ABC cassettes | (4) group translocators |
- 127.** Effect of holding one's breath on blood pH would be
- |                    |                  |
|--------------------|------------------|
| (1) increase in pH | (2) unaltered pH |
| (3) decrease in pH | (4) neutral pH   |
- 128.** The ratio  $k_{cat}/K_m$  provides a good measure of
- |                        |                          |
|------------------------|--------------------------|
| (1) catalytic affinity | (2) catalytic efficiency |
| (3) rate of reaction   | (4) transition complex   |
- 129.** Epimers differ by the configuration about only
- |                        |                       |
|------------------------|-----------------------|
| (1) one carbon atom    | (2) two carbon atoms  |
| (3) three carbon atoms | (4) None of the above |
- 130.** n-Dodecanoic acid known as lauric acid is a
- |                |                    |
|----------------|--------------------|
| (1) protein    | (2) nucleic acid   |
| (3) fatty acid | (4) polysaccharide |

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- 131.** The nucleotide sequences of a short DNA that read alike backwards and forwards are said to be
- (1) consensus sequences                      (2) palindromic sequences  
(3) satellite DNA                                (4) All of the above
- 132.** The DNA of phage lambda is
- (1) single stranded linear DNA              (2) linear duplex DNA  
(3) circular single stranded DNA          (4) circular double stranded DNA
- 133.** The chemical reaction that converts glucose to pyruvic acid in a living cell is called
- (1) glycolysis                                      (2) fermentation  
(3) citric acid cycle                              (4) All of the above
- 134.** Blood clotting factor X is also known as
- (1) Fletcher factor                              (2) Gageman factor  
(3) Fitzgerald factor                            (4) Stuart factor
- 135.** Dietary niacin is used to synthesize of the following
- (1) FAD<sup>+</sup>                      (2) NAD<sup>+</sup>                      (3) FADH                      (4) CoA-SH

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136. Grasses are

- (1)  $C_3$  plants (2)  $C_4$  plants  
(3) succulent plant (4) All of the above

137. Fusion between motile gametes of unequal size is known as

- (1) isogamy (2) anisogamy  
(3) dichogamy (4) hologamy

138. The edible part of litchi is

- (1) mesocarp (2) thalamus (3) aril (4) seed coat

139. Body in Scoliodon is covered by

- (1) dermal plates (2) placoid scales  
(3) cycloid scales (4) ctenoid scales

140. The study of reptiles is known as

- (1) ornithology (2) ichthyology  
(3) herpetology (4) Carinatae

141. Sweat glands are absent in the skin of

- (1) rabbit (2) man (3) cat (4) rat

(333)

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142. Bipolar neurons are found in  
(1) cornea (2) conjunctiva (3) retina (4) lens
143. The muscle fibers are  
(1) syncytial (2) perimysium  
(3) sarcolemma (4) endomysium
144. Convergent evolution is illustrated by  
(1) rats and dogs (2) starfish and cuttlefish  
(3) bacterium and protozoans (4) dogfish and whale
145. Which of the following is a strongest acid?  
(1)  $\text{Cl}_2\text{CHCOOH}$  (2)  $\text{ClF}_2\text{CCOOH}$   
(3)  $\text{F}_3\text{CCOOH}$  (4)  $\text{CH}_3\text{COOH}$
146. The hybridized state of carbons in  $\text{CH}_3-\text{C}=\text{CH}$  is  
(1)  $\text{sp}^2$  and  $\text{sp}$  (2)  $\text{sp}^3$  and  $\text{sp}$   
(3)  $\text{sp}$  (4)  $\text{sp}^3$
147. Which of the following is not a steroid hormone?  
(1) Progesterone (2) Oxytocin  
(3) Cortisone (4) Estrone



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**148.** The mode of action of a steroid hormone involves

- (1) binding to a cell membrane receptor
- (2) activation of protein kinase
- (3) modifying gene transcription
- (4) covalent modification of enzymes

**149.** The mad cow disease in cattle is associated to

- (1) bacteria
- (2) prions
- (3) virus
- (4) protozoans

**150.** The cross of F1 with its homozygous recessive parent is called as

- (1) test cross
- (2) back cross
- (3) top cross
- (4) direct cross

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## अभ्यर्थियों के लिए निर्देश

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

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख लें 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 लिफ्ट/फरहित 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 गाढ़ 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 सं० और ओ० एम० आर० पत्र सं० की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
8. 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 गाढ़ करना है।
9. प्रत्येक प्रश्न के उत्तर के लिये केवल एक ही वृत्त को गाढ़ करें। एक से अधिक वृत्तों को गाढ़ 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 प्रश्न-पुस्तिका के मुखपृष्ठ के अन्दर वाले पृष्ठ तथा अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ०एम०आर० उत्तर-पत्र परीक्षा भवन में जमा कर दें।
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।