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Part III — BIO-CHEMISTRY

(English Version)

Time Allowed : 3 Hours]

[Maximum Marks : 150

*Note : Draw diagrams and write equations wherever necessary.***PART - I***Note : Answer all the questions.*

50 × 1 = 50

A. Choose and write the correct answers in the answer-book :

1. The major buffer in plasma is

- a) Acetate buffer
- b) Bicarbonate buffer
- c) Phosphate buffer
- d) Hemoglobin buffer.

2. Who was the pioneer to postulate the structure of cell membrane ?

- a) Gorten
- b) Grendel
- c) Overton
- d) Robertson.

3. The optimum pH for salivary amylase is

- a) pH 6 — 7
- b) pH 7 — 8
- c) pH 8.2 — 8.6
- d) pH 8.1 — 8.5.

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4. L-amino acids are absorbed by
- | | |
|----------------------|---------------------|
| a) passive diffusion | b) active transport |
| c) both (a) and (b) | d) none of these. |
5. How many irreversible steps do occur in glycolysis ?
- | | |
|------|-------|
| a) 2 | b) 4 |
| c) 3 | d) 5. |
6. Which of the following enzymes links glycolysis and TCA cycle ?
- | |
|----------------------------|
| a) Glucokinase |
| b) PFK |
| c) LDH |
| d) Pyruvate dehydrogenase. |
7. Thyroxine means
- | | |
|----------------------|------------------------|
| a) mono-iodotyrosine | b) di-iodotyrosine |
| c) tri-iodotyrosine | d) tetra-iodotyrosine. |
8. Which one of the following is stop codon ?
- | | |
|--------|---------|
| a) AUG | b) UAG |
| c) GTC | d) GUA. |
9. GPT requires cofactor
- | | |
|------------------------|----------|
| a) NADH | b) NADPH |
| c) Pyridoxal phosphate | d) FAD. |
10. Number of double bonds in arachidonic acid is
- | | |
|------|-------|
| a) 1 | b) 2 |
| c) 3 | d) 4. |

C. Write True or False :

29. The buffering action of haemoglobin is due to the lysine residues present in it.
30. The enzyme sucrase converts sucrose into glucose and galactose.
31. 24 molecules of ATP are formed in TCA cycle.
32. Epinephrine is also called as adrenaline.
33. Cephalin is otherwise called as phosphatidyl ethanolamine.
34. RNA primer is not required for transcription.
35. Benign tumour can spread from one part of the body to another.
36. The high energy compound is 1, 3-diphosphoglycerate.
37. Malonate is the competitive inhibitor of succinate dehydrogenase.
38. IgE is otherwise called as reaginic antibody.

D. Match the following :

- | | |
|-----------------------------------|------------------------------------|
| 39. Secretin | a) Codon |
| 40. mRNA | b) GM ₂ |
| 41. Transcription | c) Secretory antibody |
| 42. Tay-Sachs disease | d) ATP synthetase |
| 43. F ₀ F ₁ | e) Monomer possesses ribose moiety |
| 44. IgA | f) Gastrointestinal hormone. |

E. Give answer in one or two word(s) :

45. What is meant by carrier protein ?
46. Which ions are needed for the effective action of ptyalin ?
47. Name the end product of anaerobic glycolysis.
48. Which is known as powerhouse of the cell ?
49. Name the inhibition caused by sulfa drugs.
50. What is the other name of metal requiring enzymes ?

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PART - II

Note : Answer any *fifteen* questions.

15 × 2 = 30

51. What is meant by endocytosis ?
52. Write any two biological applications of viscosity.
53. 'Membrane lipids are amphipathic.' Explain.
54. What is meant by satiety value of lipids ?
55. Write any two intestinal juice enzymes involved in the digestion of nucleic acids.
56. Write any two factors affecting the absorption of carbohydrates.
57. Why is pancreatic amylase more powerful than salivary amylase ?
58. What are glucogenic amino acids ? Give example.
59. Write the differences between NADPH and NADH.
60. How is methionine activated ?
61. What are essential fatty acids ? Give example.
62. Write the importance of bile salts.
63. What is the effect of lysolecithin ?
64. State Chargaff's rule.
65. Write a note on exonucleases.
66. Give the characteristic features of cancer cells.
67. What is meant by monophosphate cleavage ?

PART - IV

Note : Answer any four of the following questions. $4 \times 10 = 40$

81. How are catecholamines synthesised ?
 82. What are the reaction sequences of glycolysis ?
 83. Write about the role of tRNA in protein synthesis.
 84. List out the members of electron transport chain with their arrangement.
 85. Define and derive Michaelis-Menten equation.
 86. Explain cell mediated immunity.
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