PART - III
BIO - CHEMISTRY
(Tamil & English Versions)

Instructions:
1. Check the question paper for fairness of printing. If there is any lack of
   fairness, inform the Hall Supervisor immediately.
2. Use Black or Blue ink to write and underline and pencil to draw diagrams.
3. Draw diagrams and write equations wherever necessary.

PART - I

A. Choose and write the correct answer.

1. The term cell membrane was coined by:
   (a) C. J. Nageli and Crammer    (b) Singer and Nicolson
   (c) Robertson               (d) Gorret and Grendel

Note: Answer all the questions.
2. The major buffer system of the red blood cells are:
(a) Phosphate buffer
(b) Hemoglobin buffer
(c) Carbonate buffer
(d) Acetate buffer

3. D amino acids are absorbed by:
(a) passive diffusion
(b) active transport
(c) both of them
(d) none of the above

4. There are no enzymes in the stomach to digest:
(a) Proteins
(b) Carbohydrates
(c) Vitamins
(d) None of the above

5. How many ATP molecules are generated during glycolysis?
(a) 2
(b) 10
(c) 6
(d) 8

6. The important reducing power produced in HMP shunt pathway is:
(a) NADH
(b) NADPH
(c) FAD
(d) FADH₂
7. Which of the following is involved in Electron Transport Chain?
(a) Adenosin
(b) Non-heme iron protein
(c) Creatine phosphokinase
(d) Adenylase Cyclase

8. Urea is formed from:
(a) citrulline
(b) arginosuccinate
(c) argine
(d) ornithine

9. The enzyme carbamoyl phosphate synthetase is present in:
(a) Mitochondria
(b) Cytosol
(c) Nucleus
(d) Cell membrane

10. ________ is a derivative of cholesterol.
(a) Vitamin A
(b) Vitamin C
(c) Vitamin E
(d) Vitamin D
11. Which one is a saturated acid?
(a) Oleic acid  (b) Cerebronic acid
(c) Nervonic acid  (d) Stearic acid

12. Methyl cap and poly A tail are present in:
(a) mRNA  (b) tRNA  (c) rRNA  (d) hnRNA

13. The number of hydrogen bonds seen in between A and T:
(a) 1  (b) 3  (c) 2  (d) 4

14. The metabolite that accumulates in Tay Sachs disease is:
(a) galactose  (b) tyrosine  (c) ganglioside  (d) glucose

15. Abnormal proliferation of cells is seen in:
(a) alkaptonuria  (b) albinism  (c) neoplasm  (d) hemophilia
16. Which of the following is the high energy compound?
(a) Glyceraldehyde  (b) AMP  
(c) Pyrophosphate  (d) Lactate

17. Which of the following is the high energy compound?
(a) AMP  (b) Pyridine  
(c) Cytochrome  (d) Malate

Lock and key theory was proposed by:
(a) Dixon  (b) Fischer  
(c) Koshland  (d) Michaelis Menton

18. Which of the following is the high energy compound?
(a) Acetylcholine  (b) Acetylcholine  
(c) Hydrogen  (d) Lactic acid

The reciprocal form of M-M equation was considered by:
(a) Lineweaver - Burk  (b) Fischer  
(c) Koshland  (d) Dixon

19. Kupffer cells are seen in:
(a) Brain  (b) Liver  
(c) Kidney  (d) Spleen

20. Immunoglobulin which can cross the placenta:
(a) IgA  (b) IgE  (c) IgM  (d) IgG
B. தருக்கம் நிகழ்த்தவும் பின்புத.

Fill in the blanks.

21. குறுக்குறுக்குழக்கு இயந்தியுடன் புரது வளையக்கு அயிருடன் __________ காரணமும்.

The lubricating property of the synovial fluid is due to the presence of ______ in it.

22. மாநிலிலும் பரிபார்ப்பலும் _______ அரியத்து அவியலன் உள்ளன.

Secretin is a polypeptide with _______ aminoacids.

23. வட்டடர்பார்வகியில் அதிக அளவில் _______ பாகப்படுத்தப்படுகிறது.

Tricarboxylic acid cycle occurs in ________.

24. புல் சுருங்கப்படுத்து _______ புரைப்படுத்தப்படுகிறது.

Translocation is catalysed by the enzyme ________.

25. RNA என்ன அருகளில் விளங்கு ________.

Adenine will pair with _______ in RNA.

26. அயிர்களியாள் தோரானை விளிம்பில் புராக்கை ________

The enzyme deficiency in albinism is ________.

27. _______ அல்லது சுருளை, சுருளையை ES குழுவாக்கியுள்ளது தேவைப்பாட்டை குறிக்கும் முறைந்து.

In ________ type of inhibition, the inhibitor has got attraction towards ES complex.

28. புல் சுருங்கப்படுத்து _______ அயிர்கள் அயிர்கத்து விளங்கு ________

Recognition and destruction of cancerous cells is done by ________.
C. true or false:

29. Carbohydrates are the major components of cell membrane.

30. Fats are hydrolysed by acidic pH in the stomach.

31. Degradation of glucose is also known as glycolysis.

32. Ribosome moves from 5' to 3' direction.

33. Obesity is one of the causative factor of atherosclerosis.

34. Okasaki fragments are joined by helicases.

35. Benign tumours can spread from one part of the body to another.

36. F_1 factor is not essential for oxidative phosphorylation.

37. Malonate is the competitive inhibitor of succinate dehydrogenase.

38. Adaptive immunity functions are non-specific.
D. சொல்லவும் பயன்படுத்துங்கள்:

39. Hays' Test - Codon
40. mRNA - Galactose 1-phosphate uridyl transferase
41. Secretin - ESI
42. Galactosemia - Surface tension
43. Uncompetitive inhibition - Epinephrine
44. DOPA - GI Tract hormone

Match the following:

39. Hays' Test - Codon
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E. விளக்கும் வார்த்தைகள் விளக்கத்திலே:
Answer in one or two words.

45. பாச்சினைந் ஆறுப் பாசு?
What is the unit of viscosity?

46. பலத்தில்மாசில் பாத்திரக் கொன்று பொனை வின்னை பாது?
Name the enzymes in the stomach to digest proteins.

47. Km என்ன அடிப்போன?
Define Km.

48. RNA சேர்ப்பாய் இதற்கு ஏன் வேதங்கியல்முடி?
Name the enzyme that catalyses the formation of RNA primer.

49. கன்னியாக் கேன்பு யுத்த தொட்டர்கள் மற்றும் யுத்தயுளை யுத்தான கன்னியாக்?
What is the other name of cytochrome C reductase?

50. பல்கைமன் வீரப்பூண்டான தொடர் தையனை என்ன கேன்பால்முடிய கூரை கோர்கை?
Which virus causes the Burkitt Lymphoma?
51. What are peripheral proteins? Give an example.

52. What are the major constituents present in the cell membrane?

53. Define Buffer.

54. Write any two factors that influence carbohydrate absorption.

55. What is meant by limit dextrin?

56. Why cellulose cannot be digested by humans?

57. Give the reaction by which maltose is converted to glucose.

58. What are glucogenic amino acids?

59. What is the difference between NADH and NADPH?
60. How melanin is synthesised from tyrosine?

61. List any two biological functions of lipids.

62. What are the causative factors for atherosclerosis?

63. Write the structure of cephalin.

64. State the Chargaff’s rule of DNA composition.

65. Write about the minor bases in nucleic acids.

66. Write down the symptoms of hemophilia.

67. Mention the role of creatine phosphate in muscle.

68. What is the nature of active site according to lock and key theory?

69. What are interferons?

70. State Land Steiner’s law.
PART - III

Note: Answer Question no. 71 in Section - A which is compulsory and any five questions from Section - B.

SECTION - A

71. List the biological applications of surface tension.

OR
Explain the Fluid Mosaic model of plasma membrane.

SECTION - B

72. Give an account on digestion of proteins in stomach.

73. Explain briefly about glycogenesis.

74. Explain the formation of epinephrine from tyrosine.

75. Briefly discuss the various steps involved in cholesterol biosynthesis.

76. How are fatty acids synthesised in our body?

77. Give the cause and symptoms of Tay-Sach's disease.

78. What are the causes of cancer?
79. Explain the role of ATP as a high energy compound.

80. Explain the functions of the immune system.

पाठ्व - IV / PART - IV

Note: Answer any four of the following questions. 4x10=40

81. Describe the steps involved in HMP shunt pathway.

82. What are the steps involved in elongation of polypeptide chain in translation process?

83. Briefly discuss the various steps involved in DNA biosynthesis.

84. Explain the reactions of electron transport along with the arrangement of proteins in chain.

85. Explain the concept of competitive inhibition.

86. Explain immunoglobulin and their functions.