**Ph.D. COMMON ENTRANCE TEST**

**SUBJECT – BIOCHEMISTRY**

**Roll No:**

**Duration: 60 minutes Maximum Marks: 50**

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| **Instructions:**   1. **This entrance test question paper is not to be taken out of the examination hall** 2. **Part B Question paper consists of Section A and Section B** 3. **Section A consists of 30 MCQs carrying 1 Mark each. Put a tick (√) mark against the correct answer in the box given.** 4. **Section B consists of Descriptive questions carrying 5 marks each. Restrict your answer to 500 words. Additional plain sheets have been attached to the question paper to answer Section B** |

**SECTION – A**

**Answer the following by ticking (√) against the correct answer in the box given: 30 X 1 = 30**

1. Anti-codons in tRNA are usually read in \_\_\_\_\_
2. 3'-5' direction
3. 2'-3' direction
4. 5'-3' direction
5. None of the above

1. What is the size of the prokaryotic ribosome?
2. 80S
3. 70S
4. 40S
5. 60S
6. Which of these acts as an inducer of lac operon?
7. Allolactose
8. Lactose
9. Galactose
10. Allogalactose
11. Ubiquitin is a \_\_\_\_\_\_\_\_\_\_\_
12. Protein kinase
13. Protease
14. Sugar
15. Involved in Proteolysis
16. Examples of endogenous flourophores
17. aminoacids
18. enzymes
19. cyanine dyes
20. Both a and b
21. Molar absorbtivity is the measure of the
22. amount of light absorbed per unit length
23. amount of light absorbed per unit concentration
24. amount of light reflected per unit concentration
25. None of the above
26. What is epithelial mesenchymal transition?
27. Loss of migration and gain of adhesion
28. Formation of mesenchymal cells
29. Loss of adhesion and gain of migration
30. Lysis of cell
31. The central atom of chlorophyll contains\_\_\_\_\_\_\_ ion.
32. Chlorine
33. Magnesium
34. Zinc
35. None of the above

1. A cell organelle that is presents in animal cells but not present in plant cells is?
2. Golgi complex
3. Mitochondria
4. Centrosome
5. Cytoplasm
6. Which of the following polysaccharide is not present in the eukaryotic plant cell wall?
7. Chitin
8. Hemicellulose
9. Pectin
10. Cellulose
11. Which of the following is the process of synthesis of glucose?
12. saccharification
13. glycolysis
14. gluconeogenesis
15. neogenesis
16. Which of the following cells release insulin when glucose levels elevate in the body?
17. gamma cells
18. beta cells
19. alpha cells
20. zeta cells
21. Naturally acquired active immunity would be most likely acquired through which of the following processes?
22. vaccination
23. drinking colostrum
24. natural birth
25. infection with disease-causing organism followed by recovery
26. Which of the following cell types of the innate immune system does not perform phagocytosis?
27. Neutrophils
28. Eosinophil
29. Basophil
30. Macrophages
31. Which of the following does not protect body surfaces:
32. Skin
33. Mucus
34. Gastric acid
35. Salivary amylase
36. A polymorphonuclear neutrophil (PMN)
37. Is a bone marrow stem cell
38. Is closely similar to a mast cell
39. Contains microbicidal cytoplasmic granules
40. Is not a professional phagocytic cell
41. Which substances will not stimulate an immune response unless they are bound to a larger molecule?
42. Antigen
43. Virus
44. Hapten
45. Antibody
46. The hormone is known to classically activate a receptor tyrosine kinase?
47. Insulin
48. Testosterone
49. Epinephrine
50. Cortisol
51. -------- is known as endothelium derived smooth muscle relaxant?
52. Epinephrine
53. TXA2
54. Nor-epinephrine
55. Nitric oxide
56. Which of the following is the attribute that determines high energy status of a molecule?
57. Free energy change of hydrolysis
58. Boiling point
59. Melting point
60. Calorific value
61. \_\_\_\_\_\_ is responsible for oxidative phosphorylation?
62. Mitochondrion
63. Chloroplast
64. Nucleus
65. Peroxisomes
66. Which of the following is not a motor protein associated with cytoskeleton elements?
67. Mysoin
68. Dynein complex
69. Kinesin
70. Gelsolin
71. The carbon atom in methane is
72. Unhybridized
73. SP3 Hybridzed
74. SP2 Hybridzed
75. SP Hybridzed
76. Which of the following does not contribute to synthesis of cAMP?
77. GPCR
78. Alpha subunit of heterotrimeric proteins
79. Adenyate cyclase
80. Phosphodiesterase
81. Name the enzyme secreted by pancreas?
82. Pepsin
83. Chymotrypsin
84. Trypsin
85. Alcohol dehydrogenase

1. Name the coenzyme of riboflavin (B2)?
2. NAD or NADP
3. FAD and FMN
4. Coenzyme A
5. Thiamine pyrophosphate
6. Which of the following is not a plant growth regulator?
7. Auxin
8. Cytokinins
9. Abcisic acid
10. Polyphenols
11. The principle behind dialysis is \_\_\_\_\_\_\_\_
12. Adhesion
13. Cohesion
14. Capillary Action
15. Reverse – Osmosis
16. ----------- contains a linear system of conjugated double bonds?
17. β-carotene
18. chlorophyll
19. chloroplast
20. Thylakoid
21. Which of the following is not a fuel used in flame photometry?
22. Acetylene
23. Propane
24. Hydrogen
25. Camphor oil

**SECTION – B**

**Answer any four of the following: 5 X 4 = 20**

1. Explain the biological importance of glycoproteins with suitable examples.

2. Summarize the process of TCA cycle.

3. Explain the principle, instrumentation and applications of Fluorescent Spectroscopy.

4. Describe the isolation of multienzyme complexes with suitable protocol.

5. Differentiate primary and secondary structure of proteins.

6. Write a note on types and diagnosis of diabetes.

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