Avinashilingam Institute For Home Science and Higher Education For Woman
Coimbatore – 641043

Semester I

Question Paper- November 2017

I PG Bioinformatics

Max marks: 60
Time: 3 Hours

17MBIC01 Basic Biology
Part A

10 X ½ = 5

Choose the correct answer

1. The simplest aminoacid is
   a) Proline b) Methionine c) Glycine d) Serine
2. The first protein sequenced by Frederick Sanger is
   a) Heamoglobin b)Myoglobin c)Insulin d)Myosin
3. Many catalysts are
   a) Noble gases b) transition metals c) non metals d) inert gases
4. Metabolic pathways maintains
   a) Homeostasis
   b) Internal environment as changing in external environment
   c) None of the above
   d) Both a and b
5. In an irreversible reaction, there is a
   a) Loss of heat
   b) No gain of heat
   c) Gain of heat
   d) No loss of heat
6. Oxidative phosphorylation occurs in
   a) Mitochondria
   b) Nucleus
   c) Cell membrane

d) Ribosomes

7. Type of chromatin that participates in active transcription of DNA to mRNA product is
   a) Heterochromatin
   b) Euchromatin
   c) Both a and b
   d) None of the above
8. Dehydration of DNA samples may induce the formation of
   a) A-DNA
   b) B-DNA
   c) Z-DNA
   d) H-DNA
9. Point mutation involves
   a) Deletion
   b) Insertion
   c) Duplication
   d) Change in single base pair
10. If both alleles are same with respect to genes, then they are called
   a) Heterozygous
   b) Unicellular
   c) Homozygous
   d) Multicellular

Part B

Answer all the questions **5 x 4 = 20**

Each answer should not exceed 200 words or one page

11. (a) Explain the properties of water molecules. (OR)
   (b) Draw the 20 different structures of amino acids.
12. (a) Write a brief note on Quantitation of enzyme activity and efficiency. (OR)
   (b) Write notes on entry and exit of biomolecules from central pathways.
13. (a) Explain the law of thermodynamics with examples. (OR)
   (b) Define: (i) enthalpy & entropy (ii) reversible & irreversible process
14. (a) Differentiate Prokaryotic and Eukaryotic cell with diagram. (OR)
   (b) Explain Cot curve analysis.
15. (a) What is the Mendelian principles of inheritance? Give an example (OR)
   (b) Explain the different types of chromosomal mutation.

Part C

Answer all the questions **5 x 7 = 35**

Each answer should not exceed 600 words or three pages

16. (a) Explain in detail on structure and function of hemoglobin in human body (OR)

   (b) Define: conserved proteins, List out the highly conserved and least conserved proteins with examples

17. (a) Give a detail account on elucidation of metabolic pathways (OR)
   (b) Write a note on Enzyme characterization and Michaelis –Menten kinetics
18. (a) Explain Oxidative phosphorylation with cycle (OR)
   (b) Explain the concepts of entropy and enthalpy with their applications
19. (a) Write a detailed account on Watson and Crick model of DNA with diagram (OR)
   (b) What is Central dogma? Write a brief note about transcription and translation
20. (a) Explain the concepts of linkage and crossing over (OR)
   (b) What are the role of alleles in human.