

Master of Science (Instrumentation) Examination, 2019

(1<sup>st</sup> Year, 1<sup>st</sup> Semester)

Paper - V (I104B)

Biomedical Science-I

Time : Two hours

Full Marks : 50

Answer any three of the following questions

Two marks have been allotted for general proficiency.

1. What are the limitations of cell theory? Describe the structure and function of plasma membrane. "Both lysosomes and vacuoles are endomembrane structures, yet they differ in terms of their functions" ---- Comment. Describe the factors that control membrane fluidity.

[2+5+3+6]

2. How do you justify that an amino acid can act as acid as well as base? What is zwitterionic state of an amino acid? How can the binding of two amino acids into a peptide formation be described? "Tertiary and quaternary structures are the reflection of the primary structure of protein." ---- Justify? "Loss of protein structure results in loss of function" – discuss.

[3+2+3+4+4]

3. How do you classify the enzymes on the basis of reaction type? Describe the difference between lock & key model and induced fit model for enzyme substrate reaction. How enzyme activity is related to pH and temperature? What is feedback inhibition?

[4+ 6 +3+ 3]

4. Describe the process of secondary active transport. How simple diffusion differs from osmosis. What are the factors that control diffusion? What is exocytosis? What is pinocytosis?

[5+3+4+2+2]

5. Describe the mosquito stage of malaria parasite. Can cloroquine alone be used to treat relapsing malaria and why? What is cerebral malaria? Why the development of malaria vaccine is very difficult? Why classical malaria fever takes place every 48 hours or 72 hours? Describe innate resistance of malaria.

[4+3+2+ 2+2+3]