

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2016-19]

B.A. /B.Sc. FOURTH SEMESTER (January – June) 2018

Mid-Semester Examination, March 2018

Date : 14/03/2018

MICROBIOLOGY (Honours)

Time : 2pm – 4pm

Paper: IV

Full Marks: 50

Answer the following questions:

1. a) What is meant by disease triangle? (2)
b) Write the differences between the life cycle and disease cycle? (2)
c) Mention the stages of pathogenesis in plants leading to manifestation of disease symptoms. (2)
2. a) What is the role of *Riftia* haemoglobin to the success of the tube worm- endosymbiont mutualistic relationship? (2)
b) How does cooperation differ from mutualism? (2)
c) What is the competitive exclusion principle? (1)
d) Define predation and parasitism. (2)
3. a) Protein unfolding is initiated by breaking of forces that stabilizes it – briefly explain how different forces and various denaturing agents work in stabilizing and destabilizing a protein structure, respectively. (2)
b) Protein folding pathways are hierarchical – elaborate. (1)
c) Protein misfolding creates many diseases – elaborate with examples. (2)
4. a) How would you justify that clay is the active portion of soil matrix? (2)
b) How does kappa casein provide stability to colloidal suspension of milk? (3)
c) Advise some measures to minimize contamination of slaughtered animal (carcass) during processing of meat. (2)
5. a) Why is *S. cerevisiae* considered an model organism in the laboratory? (2)
b) Mention the important differences between the life cycle of a budding yeast and a fission yeast. Describe with proper diagram. (3)
6. a) What is the role of glutamate in urea cycle? (2)
b) How many ATPs are needed to make one molecule of urea? Mention the steps. (3)
c) Name two amino acids that are purely ketogenic in nature. (1)
7. a) How is Thymine synthesized inside cell ? (4)
b) What reaction does Xanthine oxidase catalyze? (3)
8. a) PFK is considered as the pacemaker of glycolysis- justify. (3)
b) Iodoacetate is an animal poison – explain the statement with a suitable example. (2)
c) What are the differences between hexokinase and glucokinase? (2)