

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

SECOND YEAR

B.A./B.SC. THIRD SEMESTER (July – December), 2012

Mid-Semester Examination, September 2012

Date : 10/09/2012

MICROBIOLOGY (Honours)

Time : 2 pm – 4 pm

Paper : III

Full Marks : 50

1. a) What do you mean by enzyme nomenclature and classification? [2]
b) Coenzymes can be considered as special class of substrate —Justify. [1½]
c) Draw the dixon plot for competitive and noncompetitive inhibition. [1½]
2. a) What do you mean by “Red cell ghost” and “White cell ghost”? [2]
b) What are the different types of phospholipids movement observed in plasma membrane —Explain with proper diagram. [3]
c) Explain briefly the role of ER in synthesis of secretory proteins? [3]

OR

2. a) Mention the difference between prokaryotic and eukaryotic plasma membrane. [3]
b) Explain the importance of lipid asymmetry in plasma membrane. [3]
c) Briefly explain the role of cholesterol in eukaryotic plasma membrane. [2]
3. Write short notes on :
a) Briggs-Haldane modification of enzyme equation [5]
b) Lineweaver Burke plot and its advantage and disadvantage. [5]
4. Justify True or False : (Answer **any two**)
a) K_p can never be greater than K_1 . [2½]
b) K_m does indicate enzyme's affinity for substrate. [2½]
c) Rate limiting step is the step with the faster reaction rate. [2½]
5. a) What is Okazaki fragment? How was the discontinuous synthesis of DNA on lagging strand template proved? [1+3]
b) Write the mechanism of nick translation during replication. [3]
c) How is the nature of genetic code proved by triplet-binding assay. [3]
d) Write down the structural and functional differences between DNA polymerase I and DNA polymerase III. [2]
e) RNA polymerase has got no proofreading function. Why? [1]
f) Write the characteristic features of the normal promoter sequence of a transcriptional unit. [2]

OR

5. a) Briefly mention the phenomena of Wobble pairing in translation. [3]
b) Which measures are taken by a prokaryotic cell to increase the fidelity of replication. [3]
c) Write the editing function of amino acyl tRNA synthetase. [2]
d) Show a scheme by which you can synthesize biologically active DNA. [3]
e) Briefly mention the mechanism of isomerization in transcription and the consequences. [2]
f) What will happen if the gene for gyrase is mutated? [2]
6. a) Air is not suitable for the growth of microorganisms —Justify. [2]
b) Write down any two chemical methods of sanitation of air. [2]

7. Write a note on bioaerosols as a vehicle of air-borne diseases. [3]

OR

How would you enumerate the bioaerosols of different sizes? [3]

