

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

## SECOND YEAR

B.A./B.Sc. FOURTH SEMESTER (January – June) 2015

Mid-Semester Examination, March 2015

Date : 18/03/2015

### MICROBIOLOGY (Honours)

Time : 11 am – 1 pm

Paper : IV

Full Marks : 50

1. a) Write the differences between the Zymogenous and autochthonous bacteria? [2]  
b) Write down the similarities and dissimilarities between the nitrogen and sulfur cycle. [3]  
c) What are the disadvantages of agar-plate method in enumeration of bacteria? [2]  
d) What is meant by ammensalism? Cite suitable example. [3]
2. a) Glycolysis is used for rapid ATP production. —Justify the statement. [3]  
b) Fluroacetate is an animal poison. —Comment on the statement. [2]  
c) What do you understand by substrate cycling? [2]  
d) Write short notes on succinate dehydrogenase. [2]  
e) What is fructosuria? [1]
3. a) What are secretory proteins? Mention their important functions. [2]  
b) Briefly describe the type-III secretory system found in bacteria. [4]
4. a) Milk is a suitable substrate for the growth of microorganisms. —Explain. [2]  
b) What is ropiness of milk? [2]  
c) What is putrefaction? [2]  
d) Name one thermoduric organism. [1]
5. a) What dictates whether an amino acid is considered glucogenic or ketogenic? [1]  
b) 'Urea cycle is compartmentalized' —Why? [2]  
c) 'Urea cycle and TCA cycle is linked' — Explain. [2]
6. a) Write a brief account on the three types of folding accessory proteins, namely, Protein disulfide isomerases, peptidyl prolyl cis-trans isomerases and molecular chaperones. [3]  
b) What are prion diseases? [2]
7. While studying on In Vitro pathway of Nucleotide biosynthesis on cell free extracts of human liver cells, accidentally some THFA derivatives fell into the extracts, what would happen if,  
a) The N<sup>10</sup> Formyl group of N<sup>10</sup>-Formyl THFA was C<sup>14</sup> radiolabelled. [3·5]  
b) The N<sub>1</sub> of N<sup>5</sup>, N<sup>10</sup> Methylene THFA was heavy labelled with N<sup>15</sup>. [3·5]

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