

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.Sc. FIRST SEMESTER EXAMINATION, SEPTEMBER 2014

FIRST YEAR

MICROBIOLOGY (Honours)

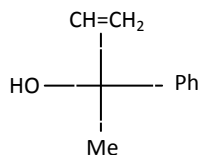
Paper : I

Date : 15/09/2014

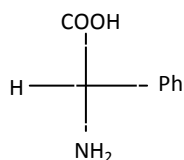
Time : 11 am – 1 pm

Full Marks : 50

1. a) Why was ribosomal RNA used by Carl Woese to classify organisms phylogenetically? (2)
b) Mention two exceptions of Koch's postulates. (2)
c) Write the advantages of agar over gelatin as a solidifying agent in the preparation of culture medium. (2)
d) What is pasteurization? (1)
2. a) Define polyprotic acids with proper example. (2)
b) What is the ratio of $[\text{HCOOH}] : [\text{HCOONa}]$ to prepare a solution of pH 2.
(Given, $K_{\text{HCOOH}} = 2 \times 10^{-4}$) (2)
c) Determine the pH of 10^{-8} N HCl . (2)
d) What are ampholytes? Give examples. (2)
3. a) What is endoflagella? (2)
b) Write down the structural and functional differences between intrinsic and extrinsic proteins. (2 + 2)
c) Write down the structure and function of diploptene. (2)
d) Write down the structure of teichoic acid. (2)
4. a) In connection with protein structure, state and explain the role of peptide bond. (3)
b) how hydrogen bonding assists in forming the secondary structure of proteins? (2)
5. Write down the structures of :- (1 + (2 × 3))
 - i) cGMP
 - ii) Thymidine
 - iii) Syn-dAMP
 - iv) Cpp
6. a) What do you mean by stereospecificity & stereoselectivity? (2)
b) Give an example of nonchiral molecule with stereogenic centre. (2)
c) Draw an energy profile diagram of ethylene glycol. (2)
d) Write down R/S nomenclature of the following molecules. (2)



and



7. a) What is histogram and class mark? (2)
b) The mean weight of 100 carp fishes of a pond is 49.46 kg. The mean weight of 200 carp fishes of another pond is 52.32 kg. Find the combined mean weight of all the carp fishes? (3)