

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [2016-19]

B.A./B.Sc. FIRST SEMESTER (July – December) 2016

Mid-Semester Examination, September 2016

Date : 10/09/2016

MICROBIOLOGY (Honours)

Time : 11 am – 1 pm

Paper : I

Full Marks : 50

1. a) How did Pasteur prove that life originates from preexisting one? [3]
b) Write two exceptions of Koch's postulates. [2]
c) What is Tyndallization? [2]
2. a) What is a sphaeroplast? How does it form? [2+2]
b) Why are the capsulated bacteria more pathogenic? [2]
c) Name a tetrad bacterium. [1]
3. a) Enumerate the characteristic features of primary, secondary, tertiary and quaternary structures of protein. [3]
b) How would the following agents and/or procedures interfere with or disrupt the different levels of protein architecture?
i) addition of SDS
ii) oxidation of cystine with performic acid to cleave disulphide bonds
iii) addition of proteases such as trypsin. [3]
4. a) What are polyprotic acids? Explain with proper examples. [2]
b) What is the concentration of HNO_3 in a solution that has a pH of 3.4? [2]
c) What is "buffer capacity"? [1]
5. a) A chromogen cannot act as a Dye —Justify. [3]
b) What are Leucocompounds of a stain or dye? Give examples. [2+1]
c) How would you stain an Acid fast bacteria? [4]
6. a) Give an example of non chiral stereogenic molecule. [1]
b) Give an example of a pair of diastereomer. [1]
c) What are the drawbacks of D/L nomenclature? [2]
d) Show the R/S nomenclature of meso tartaric acid, riboric acid and glucaric acid. [3]
e) What is dihedral angle? [1]
f) Define Centre of Symmetry with example. [2]
7. Calculate the mean or median from the following data. [5]

Class interval	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	5	19	10	13	4	4	2

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