

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
MID SEMESTER TEST - AUGUST 2016
M.SC. MICROBIOLOGY- I SEMESTER
MB7416- MICROBIOLOGICAL TECHNIQUES

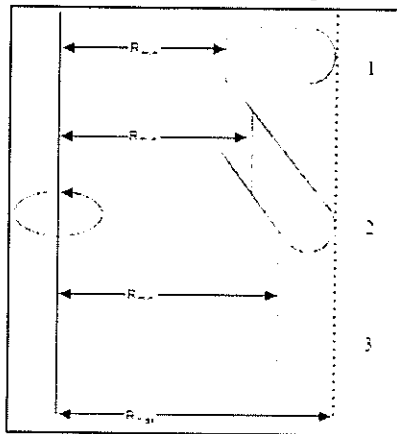
Time: 1 1/2 hours

Max. Marks: 35

I. Answer any five of the following

5x2=10

1. Explain the principle of i) differential centrifugation; ii) density gradient centrifugation; iii) isopycnic centrifugation.
2. Calculate the pH of a solution of 5.0×10^{-4} M, HCl and write the acid dissociation reaction for hydrochloric acid.
3. With the help of Jablonski diagram explain fluorescence.
4. Label (1-3) the different types of rotor in the given diagram.



5. What are the different kinds of interaction among biomolecules in aqueous solvent?
6. Why Atomic Force Microscope is being widely used as an imaging tool in biological studies?
7. How does moist heat destroy microorganisms?

II. Answer any two of the following:

2x5=10

8. Derive the Henderson-Hasselbalch equation for the dissociation of a weak acid.
9. Differentiate between light and electron microscope.
10. What are the different chemical groups that make up stain? Explain the role of each.

III. Answer any one of the following:

1x10=10

11. With the help of a neat labelled ray diagram, explain the working of a phase contrast microscope.
12. What are the different ways that moist heat is employed to bring about sterilization or disinfection? Explain in detail

IV. Answer the following:

1x5=5

13. You have isolated different kinds of microorganisms from a clinical sample. What type of staining and microscopy would you use to view (a) cell wall of bacteria, (b) sporulating cells, (c) motile bacteria, (d) colonies of bacteria, (e) acid fast bacteria?