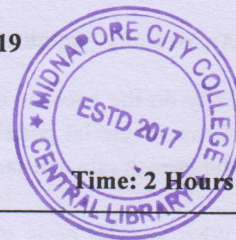


PG (NEW) CBCS
M.Sc. Semester-I Examination, 2019
BOTANY
PAPER: BOT-101
(MICROBIOLOGY)



Full Marks: 40

Time: 2 Hours

1. Answer any four questions from the following:

2×4=8

- i. Differentiate between Gram positive and Gram negative bacteria.
- ii. Write down the importance of widal test.
- iii. What are the late genes in virus?
- iv. Define disinfectant and antiseptic.
- v. What is the full name of ELISA? What enzyme is used for the test?
- vi. Mention the advantages of Capsule in bacteria.
- vii. Define aerosols. Why humid atmosphere contain fewer microorganisms than a dry one?
- viii. What is nod gene? State its function.

2. Answer any four questions from the following:

4×4=16

- i. What is Monoclonal antibody? How does it produce? 1+3
- ii. What is mordant? Why do Gram negative bacteria lose the crystal violet colour after alcohol wash in Gram staining process? 1+3
- iii. Draw and discuss the ultra-structure of flagella. 4
- iv. Describe the Baltimore classification of animal virus with examples. 4
- v. What is malolatic fermentation? Why is it performed? Give an outline of production of wine. 1+1+2
- vi. What is Leg haemoglobin? State its function. How does it differ from blood haemoglobin? 1+1+2
- vii. What is meant by enrichment culture technique? What culture conditions are employed for the isolation of nitrogen fixing bacteria from the soil? What are siderophores and why are they necessary? 1+1+2
- viii. Describe how you would dilute bacterial cultural by 10^8 . Why is ionizing radiation more effective than UV radiation for sterilization of food products? 2+2

3. Answer any two questions from the following:

8×2=16

- i. Why do the bacteria enter in the stationary phase? Define generation time and yield factor. Bacterial population increases from 10^3 cells to 10^9 cells in 10 hours. What is the growth rate constant? 2+2+4
- ii. What are the basic characteristics of a substance to be an immunogenic? What is adjuvant? Write down the basic structure of immunoglobulins? 3+1+4
- iii. Write short notes on (any two): 4×2
- a. Oncogene
 - b. Western blotting
 - c. Outer membrane of Gram negative bacteria
- iv. Discuss and outline the various steps of penicillin production. How semisynthetic penicillins are produced? Why they are more effective than natural penicillin? 3+2+1+2

