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PG CBCS
M.Sc. Semester-IV Examination, 2019
BOTANY
PAPER: BOT-402
Special paper I
(MICROBIOLOGY)

Full Marks: 40**Time: 2 Hours**

Special Paper – I:
MICROBIOLOGY- BASIC

1. Answer any five of the following:**2×5**

- a. Why do the Gram negative bacteria lose the crystal violet colour after alcohol wash in the Gram staining process.
- b. What is pure culture?
- c. Distinguish between *Myoviridae*, *Siphoviridae*, and *Podoviridae* family phages.
- d. Why do the bacteria enter in the stationary phase?
- e. Name two virus responsible for human cancer.
- f. Define diauxic growth.
- g. What is alternate nitrogenase?
- h. What is ectomycorrhizae?

2. Answer any two of the following:**5×2**

- a. Bacterial population increases from 10^2 cells to 10^8 cells in 10 hours.
What is the growth rate constant?
- b. Write a short note on "Quorum sensing of *Vibrio fischeri*".
- c. Mention different ways of drug resistance found in bacteria?
- d. Write short note on electron microscopy?

(Turn over)

(2)

3. Answer any two of the following:**10×2**

- a. Write down the different steps of lytic life cycle of bacteriophage. Mention regulation of lysogenic cycle in bacteria. Name a bacteriophage without tail and a filamentous structure. **4+4+2**
- b. Write down the mode of action of Penicillin and Streptomycin. Write a short note on Actinomycetes. Why do bacteria form Biofilms? **4+3+3**
- c. Mention different ways of biological nitrogen fixation. Write down the structure of nitrogenase enzyme. How do the aerobic nitrogen fixing bacteria protect nitrogenase from oxygen? **5+3+2**
- d. Write down two properties of cancer cells. Briefly describe the role of oncogene in causing cancer. What does it mean by c-DNA library? Why the plasmid is essential in cloning technology? **2+3+2+3**
