

**PG CBCS**  
**M.SC. Semester-IV Examination, 2021**  
**BOTANY**  
**PAPER: BOT 402D**  
**(MICROBIOLOGY- BASIC)**

**Full Marks: 40**

**Time: 2 Hours**

**Answer any FOUR questions from the following:**

**10 x 2 = 20**

1. Define diauxic growth. What is yield factor? Prove that bacterial mean generation time is reciprocal of the mean growth rate constant. What is maximum specific growth rate? 2+2+4+2
2. Write down the mechanism of quorum sensing. What is biofilm? Why do bacteria form biofilms? 4+2+4
3. Mention the role of plasmids in recombinant DNA technology. State the general properties of plasmid. 5+5
4. What is prophage? Briefly describe the lysogenic life cycle of bacteriophage. How do UV radiation affect the life cycle of bacteriophage? 2+5+3
5. Write down the structure of HIV. Write short notes on oncogenic Viruses. State the name and function of each genes present in HIV. 3+4+3
6. State the mode of action of penicillin, streptomycin, and viricidin on bacterial cell. Briefly describe the mechanism of antibiotic resistance found in bacteria. 6+4
7. Write down the different types of biological nitrogen fixation. Mention the structure and function of leg-haemoglobin. 5+5
8. Write down general characteristics of Mycoplasma. Write short note on (a) plant-microbes relationship (b) c DNA library 4+(3+3)

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