Sec. 2019-20

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

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

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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

(Turn Over)

3. Answer any <u>two</u> 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