

**M.Sc. 1st Semester Examination, 2019**

**BOTANY**

*(Microbiology)*

PAPER – BOT-101

*Full Marks : 40*

*Time : 2 hours*

**Answer all questions**

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

*Illustrate the answers wherever necessary*

1. Answer any *four* questions : 2 × 4
- (a) What is 'nif' gene ?
- (b) What are interferons ?
- (c) Mention why anaerobic bacteria are unable to survive in oxygen environment ?

- (d) What is the utility of dry heat sterilization ?
- (e) Mention two uses of immunofluorescence technique.
- (f) Mention functions of teichoic acid.
- (g) Compare antiseptic and disinfectant.
- (h) Name the causal organism of Q-fever and plague.

2. Answer any *four* questions : 4 × 4

- (a) Mention different primary characteristics of an immune system.
- (b) Discuss different process of development of synchronous culture in laboratory.
- (c) Write down cultivation process of an animal virus.
- (d) State the techniques used in food sterilization.
- (e) Draw and discuss basal part of a bacterial flagella.
- (f) Mention different steps for production of beer.

(g) Distinguish between innate and acquired immunity.

(h) Mention role of viruses in causing cancer.

3. Answer any *two* questions : 8 × 2

(a) Compare the transformation mechanism of Gram positive and Gram negative bacteria.  
What is artificial transformation ? 6 + 2

(b) Discuss three domain concept of Woese.  
Mention principle characteristics used in identification of bacteria. 3 + 5

(c) Discuss structure of nitrogenase enzyme.  
What are different symbiotic nitrogen fixers ?  
Mention role of leghaemoglobin in nitrogen fixation. 3 + 3 + 2

(d) Air is not suitable medium for microbial growth-Explain. Name two human disease caused by air borne microorganisms and mention their causal organisms. Outline control measures of air borne pathogens. 2 + (2 + 2) + 2

---