

U.G. 4th Semester Examination - 2020
Molecular Biology and Biotechnology
[GENERIC ELECTIVE]
Microbiology

Course Code : MBG 201 (T) CC4

Full Marks : 40

Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

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

1. Answer any **five** questions: 2×5=10
- a) What are pleomorphic and vibrioid bacteria?
 - b) What are the functions of capsule in a bacterial cell?
 - c) What is diauxic growth?
 - d) Write down the germ theory of disease.
 - e) Name a ssDNA and dsDNA containing bacteriophages.
 - f) What do you understand by the term 'nucleocapsid'?
 - g) Mention the specific uses of chemical agents for sterilization.

- h) Write down the theory of spontaneous generation.

2. Answer any **two** questions: 5×2=10
- a) Classify bacteria on the basis of their occurrence in extreme environment. How do the hyperthermophiles survive at high temperature?
4+1
 - b) Briefly describe the lipopolysaccharide structure of a bacterium. What are the differences between the Gram positive and Gram negative bacterial flagella with respect to their ultrastructure?
3+2
 - c) Name one plant virus with its molecular structure and discuss briefly on the replication of that plant virus.
5
 - d) Differentiate between dry heat and moist heat sterilization. Write down the advantages of both the sterilization process.
3+2
3. Answer any **two** questions: 10×2=20
- a) What are the differences between food borne intoxications and food borne infections? What is lyophilization? Briefly describe the controlling methods of food spoilage. What are probiotics?
3+2+3+2

[Turn Over]

- b) Describe Koch's postulates. What are the differences between cell walls of Gram positive and Gram negative bacteria? 5+5
- c) Diagrammatically describe the various phases of bacterial growth in a closed system. Deduce the mathematical relationship between generation time and other factors. What do you mean by pure cultures? 5+3+2
- d) What is viral envelope? What are capsomers? Differentiate between lytic and lysogenic cycles of replication of bacteriophages. 2+2+6
-