

B.Sc. (Hons.) Semester-VI Examination, 2022

Subject- Microbiology, Paper- DSE-3

(Advances in Microbiology)

FM-40

Time- 2hrs

Q. 1. Answer *any five* from the following:

2 x 5 = 10

- a. What is HGT? Write its significance (one point).
- b. Write applications of synthetic biology.
- c. What is hypersensitive response of plants against plant pathogens?
- d. State how resistance against antimicrobial compound is gained by bacteria?
- e. How core genome differs from pangenome?
- f. Write salient features (two points) of bacterial genomes.
- g. Why metagenomics approaches are superior over culture dependent approaches, in diversity studies?
- h. Name two human and two plant pathogenic bacteria.

Q. 2 Answer *any two* from the following:

5 x 2 = 10

- a. Write a short note on epiphytic fitness and its mechanisms in plant pathogens.
- b. Explain networking in biological systems with special emphasis to its significance.
- c. What are AHLs. Discuss AHL dependent mechanisms of quorum sensing in bacteria. 1+4
- d. Write a short note on the artificial cell, highlighting its possible significance in tomorrow's world.

Q3. Answer *any two* from the following:

10 x 1 = 10

- a. What are secretion systems of bacteria? Explain TTSS of animal pathogen, emphasising their contributory role for disease development of host. 2+8
- b. Explain with suitable illustrations on metagenomics and its approaches towards prospecting of biotechnologically important genes. 4+6
- c. What is Biofilm? State the molecular structure of a typical biofilm. and illustrate its significance in health care and virulence. 1+ 3+3+3=10
- d. What are system- and synthetic biology? State their networking in biological system. Give the applications of synthetic biology.

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