

**U.G. 5th Semester Examination - 2024****PHYSIOLOGY****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : PHYSIOL-H-DSE-T-02****(Microbiology and Immunology)****Full Marks : 40****Time : 2½ 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 from the following:****2×5=10**

- a) Name one Gram-positive and one Gram-negative bacteria.
- b) What do you understand by bactericidal agents? Give one example.
- c) Distinguish between antigens and haptens.
- d) State the importance of active immunity.
- e) What do you mean by APC?
- f) What is the role of porins present in the outer membrane of gram-negative bacteria?
- g) What do you mean by monoclonal antibody?
- h) What do you mean by hypersensitivity?

**[Turn Over]**

2. Answer any two questions from the following:

5×2=10

- a) Distinguish between the cell walls of Gram positive and Gram-negative bacteria.
- b) Classify Immunoglobulins. What is the difference between NK cell and K cell? 4+1
- c) What do you mean by autoimmune disease? Explain with one example. 4+1
- d) Write a short note on bacterial transformation.

3. Answer any two questions from the following:

10×2=20

- a) Discuss the different phases of bacterial growth curve. How can you determine the generation time of bacteria? 8+2
- b) Describe how antibiotics are classified in terms of their mode of action. Write the mechanism of action of penicillin as a bactericidal antibiotic. 4+6
- c) Write down the principle of ELISA. Describe the immunological detection mechanism through sandwich ELISA. 4+6
- d) What is complement system? Describe the classical pathway of complement system. What do you mean by avidity? 2+6+2