

Microbiology (P.G.)

[CBCS]

M.Sc. Second Semester End Examination-2024

(Regular & Supplementary Paper)

PAPER-MCB-201

[Fundamentals of infection and immunity:

Medical microbiology and immunology]

Full Marks: 40

Time: 02 Hrs

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.

Group A

[Medical Microbiology]

1. Answer any two questions of the following: 2x2= 4
- a. What is MRSA? How could the infection caused by MRSA be stopped from spreading? 1+1
 - b. What is focal infection? 2
 - c. Write the constitutive biochemical defense property of plant. 2
 - d. Mention one provision of biological weapon convention. 2
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(2)

2. Answer any two questions of the following: $2 \times 4 = 8$
- a. Write a brief note on bacterial exotoxin. 4
 - b. Describe the cause, symptoms and mode of pathogenesis of a bacterial infection. (1+1+2)
 - c. What is generation of antibiotics? Discuss about the generation of antibiotics with reference to an antibiotic. (1+3)
 - d. Write two antiviral and antifungal drugs mentioning respective pathogen. (2+2)

3. Answer any one question of the following: $1 \times 8 = 8$
- a. What is Bioterrorism? Mention the microorganism used for bioterrorism (BT) with respect to CDC? 2+6
 - b. Give a brief account of common mycotic infections in human. Write about the beneficial association between plant and fungi. 4+4

Group B

[Immunology]

1. Answer any two questions of the following: $2 \times 2 = 4$
- a. What is clonal selection theory? 2
 - b. Define allotype and idio type (1+1)
 - c. Why avidin and biotin chemistry is more sensitive in ELISA? 2
 - d. What are the underlying reasons of splenomegaly in thalassemia patients? 2

(3)

2. Answer any two questions of the following: $2 \times 4 = 8$
- a. What are affinity, avidity and cross reactivity in immunological reactions? Explain with examples. 4
 - b. Write down the mechanism of transplant rejection. 4
 - c. Write the mechanism of cytotoxic T-Cell (CTL)-mediated lysis of target cells. 4
 - d. Define antigen processing. Explain how exogenous antigen is presented to class two MHC-complexes? 1+3

3. Answer any one question of the following: $1 \times 8 = 8$
- a. What is meant by antibody diversity? How do the most probable numbers of Ig gene generated through VDJ rearrangement. 2+6
 - b. Difference between monoclonal and polyclonal antibody. Write down the process of production of monoclonal antibody. 2+6

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