

2022

MICROBIOLOGY

[P.G.]

(M.Sc. Second Semester End Examination-2022)

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]

Marks 20

- 1. Answer any two questions from the following: 2x2= 4**
 - a. How do bacterial pathogens cause infection in humans? 2
 - b. Name the causative agents in bacterial diarrhoea. 2
 - c. What is selective toxicity? 2
 - d. Why do bacteria show the multi drug resistant property? 2

- 2. Answer any two questions from the following: 2x4 = 8**
 - a. Differentiate between *N.meningitidis* and *N. gonorrhoeae*. 2+2

(2)

- b. What are the different suppurative and non-suppurative Streptococcal infections? 2+2
- c. What is phytoalexins? Write the importance of phytoalexins. 1+3
- d. What is endotoxin? Name one . What are the underlying reasons for development of antimicrobial resistance?

3. Answer any one question of the following: 1x8 = 8

- a. What is Bioterrorism? What type of microorganism are used for Bioterrorism (BT) as referred by CDC? 2+6
- b) Discuss about the different infections caused by staphylococcus aureus. State the mode of action of cholera toxin. 4+4

Group - B

[Immunology]

Marks 20

1. Answer any two questions from the following: 2x2= 4

- a. How many different types of MHC can a human being express? Mention their sites of expression. 1+1
- b. Write down the principle of complement fixation test. 2
- c. Write down two differences of live attenuated and killed inactivated vaccine. 1+1
- d. What is Monoclonal antibody?

2. Answer any two questions from the following: 2x4 = 8

- a. How endogenous antigen is processed and presented by MHC? What is CLIP? 3+1

(3)

- b. Complement system is part of both innate and adaptive immunity-explain Mention some inhibitors of complement system. 2+2
- c. Write down the mechanism of inflammatory response. 4
- d. In competitive and non-competitive ELISA draw the standard graph with antigen vs absorbance? 4

3. Answer any one questions of the following: 1x8 = 8

- a. Describe hinge region, hypervariable region, epitope, paratope. Discuss the role of RAG 1, RAG 2 and RSSs in DNA rearrangement during antibody diversity generation. (1+1+1+1+1)+3
- b. What effect would removal of thymus have on chickens? Discuss about the killing mechanisms followed in phagocytosis process. How NK cells and T_c cells differ in their function? 2+4+2
