[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 2378 **F–4** **Your Roll No.....**

Unique Paper Code : 2581401

Name of the Course : **B.Sc. (Hons.) Biomedical Science**

Name of the Paper : Medical Microbiology

Semester : IV

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question No. **1** is compulsory.
4. Give illustrations and examples wherever required.
5. Subparts of the questions should be attempted together.

1. (a) Define each of the following terms (any **FIVE**) :

   (i) Colicins

   (ii) Mesosomes

   (iii) Carboxysomes

   (iv) Endospore

   (v) Teichoic acid

   (vi) DPT

   (vii) Vaccine (5×1=5)

   (b) Explain the following (any **FOUR**) :

   (i) Common mechanism that a bacterium uses to resist the effects of penicillin.

(ii) Crystal violet stain is not retained by gram negative cells.

(iii) Lambda phage enters lysogenic pathway in unfavourable conditions.

(iv) In a culture tube, cells of obligate anaerobes accumulate at the bottom of the tube during growth.

(v) Spectrophotometric analysis is an indirect method of estimating generation time of bacteria. (2×4=8)

(c) Differentiate between the two terms (any **TWO**) :

(i) Archaebacteria and Eubacteria

(ii) Viroid and virusoid

(iii) Defined and Complex media

(iv) Proteomer and Capsomere (2×2=4)

(d) Give contributions of the following (any **FOUR**) :

(i) Alexander Flemming

(ii) Edward Jenner

(iii) Metchinicoff

(iv) Antonie Van Leuwenhock

(v) Walksman (2)

2. (a) Discuss the diagnosis of tuberculosis in detail and development of MDR strains of tuberculosis. (6)

(b) Explain food intoxication, food borne infection and food poisoning with contrasting features. (3)

(c) Write the name of pathogen responsible for

(i) Anthrax

(ii) Gonorrhoea

(iii) Leprosy

(iv) Trachoma

(v) Botulism (5)

3. (a) Explain what is by Herd Immunity. How is it advantageous for vaccination ? (4)

(b) What is meant by disease transmission ? Explain the various methods of disease transmission. (5)

(c) Define compromised host. State two principle conditions that can compromise the host. (5)

4. (a) Explain the mechanism of flagella movement. Diagram each of the following flagellar arrangements :

(i) lophotrichous

(ii) amphitrichous

(iii) monotrichous

(iv) polar

(v) peritrichous (7)

(b) Discuss the various strategies or techniques used to obtain pure cultures. (3)

(c) Explain proton pump and its use in bacteria. (4)

5. (a) What is the mechanism of transformation ? Discuss in brief with suitable examples. (3)

(b) Explain mechanism of action of any **three** of the following antibiotics :

(i) tetracyclins

(ii) quinolones

(iii) aminoglycosides

(iv) macrolides (5)

(c) Quorum sensing as a virulence mechanism in bacteria, Justify. (6)

OR

Give the causative agent, structure and symptoms of malarial infection. What is the cure and how has this disease spread over the years ?

6. Write short notes on any **FOUR** of the following :

(a) Role of rRNA on molecular phylogeny

(b) Magnetosome

(c) Pasteurization

(d) Phenol coefficient

(e) Growth curve of bacteria and generation time

(f) Five kingdom classification

(g) Conjugation (3.5×4=14)