

RAR-003-1012016

Seat No. \_\_\_\_\_

B. Sc. (Sem. II) (CBCS) Examination

March / April - 2019

Microbiology - MB-201

(Microbial Chemistry & Microbial Control)

Faculty Code : 003

Subject Code : 1012016

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

PHY 202

- Instructions :**
- (1) All questions are compulsory.
  - (2) Marks for each question are indicated on the right.
  - (3) Support your answers with suitable diagrams wherever applicable.

1 (a) Objective type questions : 4×1=4

- (1) Name the chemical bond in which electrons are shared by the atoms.
- (2) \_\_\_\_\_ and \_\_\_\_\_ are found in the nucleus of an atom.
- (3) Define : Oxidation.
- (4) If two atoms having same atomic number but different \_\_\_\_\_ are said to be isotopes.

(b) Answer in brief : (any 1 out of 2) 1×2=2

- (1) Define Atom. Enlist its various components and draw the structure of hydrogen atom.
- (2) Define enzyme. Name any two enzymes which you have studied and the reactions they catalyze.

(c) Answer in brief : (any 1 out of 2) 1×3=3

- (1) Explain Dipole Moment and state its importance.
- (2) Define Chemical bonds. Enlist and define various types of chemical bonds giving one example of each

(d) Write note on : (any 1 out of 2) 1×5=5

(1) Structure and function of atoms.

(2) Essence of Biochemistry for microbiologist

2 (a) Objective type questions : 4×1=4

(1) Give two examples of Homopolysaccharides.

(2) Name any two aromatic amino acids

(3) Lipids are organic substances which are soluble in \_\_\_\_\_.

(4) How many base pairs are present in each turn of B - form of DNA?

(b) Answer in brief : (any 1 out of 2) 1×2=2

(1) What is lactose intolerance?

(2) Why amino acids are called Zwitter ions? What is isoelectric pH?

(c) Answer in brief : (any 1 out of 2) 1×3=3

(1) Enlist different types of RNA and give functions of each.

(2) Briefly discuss characteristics of lipids.

(d) Write note on : (any 1 out of 2) 1×5=5

(1) Physicochemical properties of amino acids.

(2) Polysaccharides

3 (a) Objective type questions : 4×1=4

(1) Define - Enzyme

(2) What is  $K_m$  value?

(3) Define : Allosteric enzyme

(4) Name the scientist who gave the concept of Lock and Key model of enzyme action.

(b) Answer in brief : (any 1 out of 2) 1×2=2

(1) What is Lock and Key model?

(2) What is the role of Transferase enzyme?



- (c) Answer in brief : (any 1 out of 2) 1×3=3
- (1) Describe factors affecting enzyme activity.
  - (2) Discuss enzyme classification

- (d) Write note on : (any 1 out of 2) 1×5=5
- (1) Regulation of enzyme synthesis.
  - (2) Inhibition of enzyme activity.

- 4 (a) Objective type question : 4×1=4
- (1) Autoclave works on the principle of \_\_\_\_\_ heat at \_\_\_\_\_ temperature.
  - (2) UV radiation is most effective at \_\_\_\_\_ wavelength.
  - (3) Define : Bactericidal agent.
  - (4) Name any two chemical and any two physical agents used for microbial control.

- (b) Answer in brief : (any 1 out of 2) 1×2=2
- (1) Briefly explain the factors affecting the selection of an ideal antimicrobial agent.
  - (2) What are Cathode rays? How can they act as an antimicrobial agent?

- (c) Answer in brief : (any 1 out of 2) 1×3=3
- (1) Write a brief note on Mode of action of an antimicrobial agent.
  - (2) Discuss : Characteristics of an ideal antimicrobial agent.

- (d) Write notes on : (any 1 out of 2) 1×5=5
- (1) Chemical agents for microbial control.
  - (2) Physical agents for microbial control

5 (a) Objective type questions : 4×1=4

- (1) Define Antibiotics.
- (2) Name one each: antifungal and antiviral chemotherapeutic agents.
- (3) Name any two antibiotics that inhibit cell wall synthesis.
- (4) Give two non-medical uses of antibiotics.

(b) Answer in brief : (any 1 out of 2) 1×2=2

- (1) What are the characteristics of an ideal chemotherapeutic agent?
- (2) Discuss non-medical use of antibiotics in brief.

(c) Answer in brief : (any 1 out of 2) 1×3=3

- (1) Write a note on microbial assay of antibiotics.
- (2) Briefly discuss - determination of MIC.

(d) Write notes on : (any 1 out of 2) 1×5=5

- (1) Classification and mode of action of antibiotics.
- (2) Antifungal and antiviral chemotherapeutic agents.