



Seat No. _____

DAC-16
First Year B. Sc. (Sem. II) (CBCS) (W.E.F. 2019)
Examination
April - 2022
Microbiology : Paper - 201
(Basics of Biochemistry & Microbial Control) (New Course)

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

[Total Marks : 70

- Instructions :** (1) Right side figures indicate mark of the question.
(2) Draw the figure wherever necessary.
(3) Write answers of all the selected questions in main answer sheet.
(4) Attempt any 5 out of 10.

- 1 (a) Answer the following : 4
(1) Define oxidation.
(2) What are isomers ?
(3) What do you mean by atomic number ?
(4) _____ is a type of chemical bonding that involves the electrostatic attraction between oppositely charged ions, or between two atoms with sharply different electronegativities.
- (b) Answer in brief : 2
Explain the term "pH".
- (c) Answer in detail : 3
Enlist types of chemical bonds and discuss in detail covalent bond.
- (d) Write a note on : 5
Structure of Atom.
- 2 (a) Answer the following : 4
(1) Define atom.
(2) Give two examples of weak bonds.
(3) What is redox reaction ?
(4) _____ is the bond between carbon and oxygen in CO₂.
- (b) Answer in brief : 2
Explain Hydrogen bond.
- (c) Answer in detail : 3
Explain structure of water molecule.
- (d) Write a note on : 5
Various types of Chemical Reactions.

- 3 (a) Answer the following : 4
- (1) Define Peptide bond.
 - (2) Most commonly used table sugar is _____.
 - (3) What do you mean by Complex Lipids ?
 - (4) What are nitrogenous bases ?
- (b) Answer in brief : 2
- Explain classes of carbohydrates.
- (c) Answer in detail : 3
- Discuss secondary structures of protein.
- (d) Write a note on : 5
- Features of Watson and Crick model of DNA.
- 4 (a) Answer the following : 4
- (1) Define carbohydrate.
 - (2) Give two examples of sulfur containing amino acids.
 - (3) Give two examples of simple lipids.
 - (4) _____ is a monomeric unit of nucleic acid.
- (b) Answer in brief : 2
- Write four applications of lipids.
- (c) Answer in detail : 3
- Discuss secondary structures of proteins.
- (d) Write a note on : 5
- Homopolysaccharides.
- 5 (a) Answer the following : 4
- (1) Define Enzyme.
 - (2) What is Isomerization ?
 - (3) Substances of a pathway which inhibit activity of enzyme are called _____.
 - (4) What do you mean activation energy ?
- (b) Answer in brief : 2
- Write rules for nomenclature of enzyme.
- (c) Answer in detail : 3
- Explain various factors affecting enzyme activity.
- (d) Write a note on : 5
- Regulation of Enzyme Activity.

- 6 (a) Answer the following : 4
- (1) Define coenzyme.
 - (2) Which enzyme was first purified and crystallized ?
 - (3) _____ is a class of enzyme that commonly perform as bipcatalysts that use water to break a chemical bond, which typically results in dividing a larger molecule to smaller molecules.
 - (4) What do you mean by an active site ?
- (b) Answer in brief : 2
- What is an operon ?
- (c) Answer in detail : 3
- Discuss classes of enzymes.
- (d) Write a note on : 5
- Chemical and Physical Properties of Enzymes.
- 7 (a) Answer the following : 4
- (1) Define sterilization.
 - (2) Which physical antimicrobial agent is used in hot air oven ?
 - (3) Name any two chemical antimicrobial agents.
 - (4) What do you mean by disinfectant ?
- (b) Answer in brief : 2
- Explain Desiccation.
- (c) Answer in detail : 3
- Discuss the role of Heavy metals and their compounds in microbial control.
- (d) Write a note on : 5
- Phenol Coefficient Method.
- 8 (a) Answer the following : 4
- (1) Define Bacteriostasis.
 - (2) Give two examples of physical agents used in microbial control.
 - (3) Name any two agents currently used for gaseous sterilization.
 - (4) What do you mean by sanitizer ?
- (b) Answer in brief : 2
- Explain the mechanism of microbial control by low temperature.
- (c) Answer in detail : 3
- Discuss the role of radiation in microbial control.
- (d) Write a note on : 5
- Characteristics, Evaluation and Selection of Ideal antimicrobial agent.

- 9 (a) Answer the following : 4
- (1) Define antibiotic.
 - (2) Write two examples of antifungal antibiotics.
 - (3) What is chemotherapeutic agent ?
 - (4) In 1928, the Penicillin, the first true antibiotic, was discovered by _____.
- (b) Answer in brief : 2
- Write nonmedical uses of antibiotics.
- (c) Answer in detail : 3
- Discuss antibiotics that damage cell membrane.
- (d) Write a note on : 5
- Antibiotics inhibiting cell wall synthesis in bacteria.
- 10 (a) Answer the following : 4
- (1) Define chemotherapy.
 - (2) Write two examples of semi synthetic penicillin.
 - (3) What is interferon ?
 - (4) Streptomycin can kill bacteria by blocking the _____ synthesis.
- (b) Answer in brief : 2
- Enlist Characteristics of ideal chemotherapeutic agent.
- (c) Answer in detail : 3
- Discuss in detail Sulfonamides.
- (d) Write a note on : 5
- Antibiotics inhibiting protein synthesis in bacteria.
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