

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

First/Third Semester

Chemistry — Allied

ALLIED CHEMISTRY — I

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

- The shape of ammonia molecule is
 - Pyramidal
 - Tetragonal
 - Hexagonal
 - None of the above
- On adding a little phosphorus to silicon, we get an _____
 - n-type semiconductor
 - p-type semiconductor
 - Metallic conductor
 - Insulator
- Which is the most important raw material used in the production of cement?
 - Lime stone
 - Clay
 - Both (a) and (b)
 - None of these
- Red coloured glass is obtained by addition of _____
 - $\text{Fe}(\text{SCN})_3$
 - Red dye
 - CuO
 - Cu_2O
- Which of the following is not an antipyretic?
 - Aspirin
 - Paracetamol
 - Phenacetin
 - Barbutaric acid
- Which of the following is an antidiabetic drug?
 - Insulin
 - Penicillin
 - Chloroquine
 - Aspirin

- The energy of antibonding molecular orbital is?
 - Greater than the bonding M.O
 - Smaller than the bonding M.O
 - Equal to that of bonding M.O
 - None of the above
- Which alkyl free radical is the most stable?
 - methyl
 - primary
 - secondary
 - tertiary
- Homolytic fission of covalent bond between carbon atoms will produce:
 - Two carbonium ions
 - Two molecules
 - Free radicals
 - Carbonium ion and carbanion
- Gases deviate from ideal behaviour because their molecules _____
 - Possess negligible volume
 - Have forces of attraction between them
 - Are Polyatomic
 - Are not attached to one another

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

- Draw the M.O diagram of N_2 molecule.

Or

 - Explain different types of hydrogen bonding.
- What are nucleophiles and electrophiles? Give example for each.

Or

 - Give the preparation and properties of carbanion.
- Derive the basic gas laws.

Or

 - Explain insulator and conductors.
- Explain the dry process of manufacture of cement.

Or

 - Explain the composition of glass.
- Write the uses of penicillin, Chloramphenicol and streptomycin.

Or

 - Write a note on analgesics and hypnotics.



PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain various quantum numbers.

Or

- (b) Explain VSEPR theory with reference to the shape of water molecule.

17. (a) Explain different types of substitution reaction.

Or

- (b) Illustrate addition reaction with specific examples.

18. (a) Explain the postulates of Kinetic theory of gases.

Or

- (b) Explain Trouton's rule and its significance.

19. (a) Briefly explain the various types of glasses.

Or

- (b) Discuss the preparation and Chemistry of lead azide and Nitroglycerin.

Page 5 Code No. : 20467 E

20. (a) Explain the cause and treatment of AIDS.

Or

- (b) What are anaesthetics? How are they classified? Explain with an example for each case.

Page 6 Code No. : 20467 E

