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Reg. No. :

Code No. : 20467 E Sub. Code : CACH 11

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.

1. The shape of ammonia molecule is

- (a) Pyramidal (b) Tetragonal
(c) Hexagonal (d) None of the above

2. The energy of antibonding molecular orbital is?

- (a) Greater than the bonding M.O
(b) Smaller than the bonding M.O
(c) Equal to that of bonding M.O
(d) None of the above

3. Which alkyl free radical is the most stable?

- (a) methyl (b) primary
(c) secondary (d) tertiary

4. Homolytic fission of covalent bond between carbon atoms will produce:

- (a) Two carbonium ions
(b) Two molecules
(c) Free radicals
(d) Carbonium ion and carbanion

5. Gases deviate from ideal behaviour because their molecules ———

- (a) Possess negligible volume
(b) Have forces of attraction between them
(c) Are Polyatomic
(d) Are not attached to one another

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6. On adding a little phosphorus to silicon, we get an _____

- (a) n-type semiconductor
- (b) p-type semiconductor
- (c) Metallic conductor
- (d) Insulator

7. Which is the most important raw material used in the production of cement?

- (a) Lime stone (b) Clay
- (c) Both (a) and (b) (d) None of these

8. Red coloured glass is obtained by addition of _____

- (a) $\text{Fe}(\text{SCN})_3$ (b) Red dye
- (c) CuO (d) Cu_2O

9. Which of the following is not an antipyretic?

- (a) Aspirin (b) Paracetamol
- (c) Phenacetin (d) Barbutaric acid

10. Which of the following is an antidiabetic drug?

- (a) Insulin (b) Penicillin
- (c) Chloroquine (d) Aspirin

PART B — ($5 \times 5 = 25$ marks)

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

Each answer should not exceed 250 words.

11. (a) Draw the M.O diagram of N_2 molecule.

Or

(b) Explain different types of hydrogen bonding.

12. (a) What are nucleophiles and electrophiles? Give example for each.

Or

(b) Give the preparation and properties of carbanion.

13. (a) Derive the basic gas laws.

Or

(b) Explain insulator and conductors.

14. (a) Explain the dry process of manufacture of cement.

Or

(b) Explain the composition of glass.

15. (a) Write the uses of penicillin, Chloramphenicol and streptomycin.

Or

(b) Write a note on analgesics and hypnotics.



PART C — ($5 \times 8 = 40$ 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.

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.
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