

(6 pages) **Reg. No. :**

Code No. : 40288 E Sub. Code : JACH 11/
SACH 11

**B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2019.**

First/Third Semester

ALLIED CHEMISTRY — I

(For those who joined in July 2016 onwards)

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following molecule has only bonded pair of electrons?

- (a) NH_3 (b) H_2O
(c) HF (d) CH_4

2. The electronic configuration of copper atom is

- (a) $3d^9 4s^2$ (b) $3d^{10} 4s^2$
(c) $3d^{10} 4s^1$ (d) $3d^9 4s^1$

3. Which of the following is an electrophile?

- (a) H^+ (b) H_3O^+
(c) NO_2^+ (d) ☒ All the above

4. A species with an unshared pair of electrons and a negative charge on the central carbon atom is called _____

- (a) Carbonium ion (b) Carbanion
(c) Free radical (d) Carbene

5. Emission of light as a result of chemical reaction is called

- (a) Fluorescence
(b) Phosphorescence
(c) Chemiluminescence
(d) Bioluminescence

6. For a reaction that obeys Einstein law

- (a) $\phi = 1$ (b) $\phi > 1$
(c) $\phi < 1$ (d) $\phi = 0$

7. An example of fibre is

- (a) Natural rubber (b) Nylon
(c) Freon (d) PVC

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8. Which of the following is a thermosetting plastic?

- (a) PVC (b) Nylon
(c) Shellac (d) Bakelite

9. Which of the following is a lubricating oil?

- (a) graphite (b) Benzene
(c) Poly glycols (d) CCl_4

10. The main raw material present in moth ball is

- (a) Benzene (b) Toluene
(c) Phenol (d) Naphthalene

PART B — ($5 \times 5 = 25$ marks)

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

Answer should not exceed 250 words.

11. (a) What is hybridisation? Explain.

Or

(b) Define :

- (i) Electro valent bond
(ii) Covalent bond.

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12. (a) What are electrophiles? Give examples.

Or

(b) Write the preparation of carbonium ion and carbanions.

13. (a) Explain chemiluminescence with example.

Or

(b) What is quantum field of a photochemical reaction? Give its significance.

14. (a) What are elastomers? Explain.

Or

(b) How will you prepare phenol formaldehyde resin?

15. (a) Write the uses of shampoo and tooth paste.

Or

(b) What are synthetic lubricating oils? Explain.

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PART C — (5 × 8 = 40 marks)

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

Answer should not exceed 600 words.

16. (a) Write note on the following

- (i) Aufbau principle
- (ii) Pauli's exclusion principle
- (iii) Hund's rule

Or

(b) Draw the structure of CH_4 , BF_3 , NH_3 and H_2O molecule.

17. (a) Give the preparation and properties of free radicals.

Or

(b) Explain different types of reaction with example.

18. (a) Write the laws of photochemistry.

Or

(b) Give the differences between thermal and photochemical reaction.

19. (a) Define the following with example

- (i) Monomers
- (ii) Polymers
- (iii) Oligomers.

Or

(b) Write note on:

- (i) Thermoplastics (4)
- (ii) Thermosetting plastics. (4)

20. (a) Write the preparation and uses of chalk piece.

Or

(b) Write note on

- (i) Lubricating oil (4)
- (ii) Solid lubricants. (4)

