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

Code No. : 33007 E **Sub. Code : AACH 11**

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2020.

First Semester

Chemistry — Allied

CHEMISTRY – II

(For those who joined in July 2020 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

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

1. The electronic configuration of chromium is

   (a) $[Ar]3d^5 4s^2$ (b) $[Ar]3d^5 4s^1$

   (c) $[Ar]3d^4 4s^2$ (d) $[Ar]3d^4 4s^1$

2. Carbon atom in methane has ———————— hybridisation.

   (a) sp (b) sp^2

   (c) sp^3 (d) dsp^2

3. ———————— are obtained by homolytic cleavage.

(a) cations (b) anions

(c) carbenes (d) free radicals

4. Which of the following is a nucleophilic reagent?

(a) H^+ (b) H^3O^+

(c) SO_3 (d) OH^-

5. ———————— stops as soon as the incident radiation is cut off.

(a) fluorescence

(b) phosphorescence

(c) chemiluminescence

(d) bioluminescence

6. Energy associated with a photon is

(a) $E = h\gamma$

(b) $E = h\lambda$

(c) $E = hc$

(d) $E = hc^2$

7. Which of the following is an elastomer?

(a) terylene (b) freon

(c) rubber (d) bakelite

8. ———————— are composed of more than one type of polymers.

(a) PVC (b) Copolymers

(c) Homopolymer (d) Polyethylene

9. Which of the following is a solid lubricant?

(a) Graphite (b) Zn

(c) Fe (d) Hg

10. The main raw material for chalk piece preparation is ————————

(a) $CaCl_2$ (b) $CaCo_2$

(c) CalO (d) $Ca(CH_3COO)_2$

PART B — ($5 \times 5 = 25$ marks)

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

Each answer should not exceed 250 words.

11. (a) Explain $s-s$ and $s-p$ overlap with examples.

Or

(b) Define the following:

(i) Covalent bond

(ii) Hydrogen bond

12. (a) What is homolytic and heterolytic cleavage? Explain.

Or

(b) Explain addition reaction with example.

13. (a) Define bioluminescence with example.

Or

(b) State and explain Beer Lambert's law.

14. (a) Write the classification of Polymers.

Or

(b) Give the differences between thermoplastics and thermosetting plastics.

15. (a) Write the criteria of good lubricating oil.

Or

(b) Explain the preparation of shampoo.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain VSEPR theory with examples.

Or

(b) What is hybridisation? Explain the formation of a molecule using hybridisation.

17. (a) What are nucleophiles and electrophiles? Explain with examples.

Or

(b) Write the preparation and properties of Carbonium ions.

18. (a) Explain the following:

(i) Fluoresence (4)

(ii) Phosphorescence (4)

Or

(b) How will you calculate quantum yield of a photochemical reaction?

19. (a) Write note on the following:

(i) homopolymers (4)

(ii) co-polymers (4)

Or

(b) Give the preparation and uses of nylon and poly vinyl chloride.

20. (a) (i) Write the classification of lubricants (4)

(ii) Write note on: Solid lubricants (4)

Or

(b) Give the preparation and uses of tooth power.
