(6 pages)

Reg. No. : ....

Code No. : 10451 E   Sub. Code : CACH 21

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

Second/Fourth Semester

Chemistry — Allied

ALLIED CHEMISTRY — II

(For those who joined in July 2021 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The species having tetrahedral complex is

   (a) $[Pd(Cl_4)]^{2-}$ (b) $[Ni(CN)_4]^{2-}$

   (c) $[Pd(CN)_4]^{2-}$ (d) $[NiCl_4]^{2-}$

2. Which one of the following contains cobalt?

   (a) Chlorophyll   (b) Haemoglobin

   (c) Vitamin B_{12} (d) Vitamin C

3. Which of the following groups has the highest inductive effect?

   (a) CH_3^- (b) CH_3CH_2

   (c) $(CH_3)_2CH^-$ (d) $(CH_3)_3C^-$

4. A racemic mixture is a mixture of

   (a) Meso and d-isomers

   (b) d-and l-isomers in equal proportions

   (c) d-and l-isomers in different proportions

   (d) meso and l-isomers

5. The unit of equivalent conductivity is

   (a) $ohm^{-1} cm^2$ (b) $ohm^{-1} cm^{-1}$

   (c) mho cm   (d) $mho\ cm^{-2}$

6. Reaction occurring at cathode is ————

   (a) Hydrolysis   (b) Neutralisation

   (c) Oxidation   (d) Reduction

7. Fructose contains ————

   (a) 5 OH groups

   (b) 3 secondary alcoholic groups

   (c) 1 Ketonic group

   (d) All are correct

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8. An amino acid contains
   (a) $-NH_2$ and COOH group
   (b) $-NH_2$ group
   (c) $-COOH$ group
   (d) any other group

9. Penicillin is
   (a) Vitamin (b) Hormone
   (c) Antibiotic (d) Analgesic

10. Phenacetin is used as
    (a) Analgesic (b) Antipyretics
    (c) Antimalarial (d) Antiseptic

   PART B — (5 × 5 = 25 marks)

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

11. (a) Write the IUPAC nomenclature of following complexes.
    (i) $[Pt(NH_3)_3Cl_3]Cl$
    (ii) $[Co(NH_3)_3Cl_3]$
    (iii) $[Cu(NH_3)_4SO_4]$
    (iv) $[Cr(H_2O)_4Cl_2]Cl$
    (v) $[Ni(NH_3)_4]Cl_2$.

    Or

    (b) Write a detailed note on chelate effects with examples.

12. (a) State and explain Inductive effect with suitable examples.

    Or

    (b) Discuss the optical activity of tartaric acid.

13. (a) Write a note on applications of Kohlrausch's law.

    Or

    (b) Describe a method for the determination of pH using glass electrode.

14. (a) How does glucose react with
    (i) Excess of $C_6H_5NHNH_2$
    (ii) Na/Hg.

    Or

    (b) Write a note on classification of amino acids.

15. (a) Write briefly about airborne diseases.

    Or

    (b) Write short notes on :
    (i) Tulsi
    (ii) Keezhanelli.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Explain briefly Werner's theory of coordination compounds.

    Or

    (b) How do Sidgwick theory explain the formation of coordination compounds?

17. (a) Discuss the types of hybridisation in ethylene and acetylene molecules.

    Or

    (b) (i) Explain hyper conjugative effect.

        (ii) Discuss the optical activity of tartaric acid.

18. (a) Account on the following

        (i) Galvanic cell

        (ii) Prevention of corrosion.

    Or

    (b) What are conductometric titrations? Explain the following type of titrations.

        (i) Strong acid vs strong base

        (ii) Weak acid vs strong base.

19. (a) (i) Describe the classification of carbohydrates with an example.

        (ii) Explain the preparation and properties of glycine.

    Or

    (b) Write a note on primary and secondary structure of proteins.

20. (a) (i) Write briefly about hereditary diseases.

        (ii) Write a note on antibiotics.

    Or

    (b) Define and give examples of the following terms.

        (i) Analgesics

        (ii) Antipyretics

        (iii) Sulpha drugs.

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