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**DHANALAKSHMI SRINIVASAN COLLEGE
OF ARTS & SCIENCE FOR WOMEN
(AUTONOMOUS)**

(For Candidates admitted from 2019 – 2020 onwards)



UG DEGREE EXAMINATIONS APRIL - 2021

**B.Sc., - CHEMISTRY
GENERAL CHEMISTRY - IV**

Time: 3 Hrs

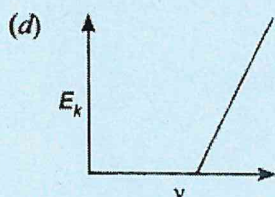
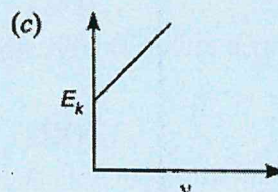
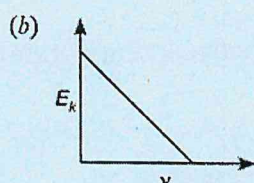
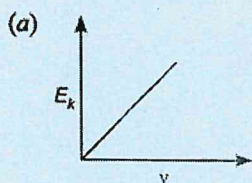
Max.Marks: 75

PART - A

CHOOSE THE CORRECT ANSWER

(10X1=10)

- Which region of the electromagnetic spectrum will provide photons of the least energy?
a) infrared light b) radio waves c) ultraviolet light d) X-rays
- Maximum kinetic energy (E_k) of a photoelectron varies with frequency (ν) of the incident radiation as



- Which of the following is not a subdivision of structural isomerism?
a) Geometrical isomerism b) Linkage isomerism
c) Coordination isomerism d) Ionisation isomerism
- Which of the following elements do not form a complex with EDTA?
a) Ca b) Mg c) Be d) Sr
- Enantiomers have
a) Only same physical properties b) only same chemical properties
c) same physical and chemical properties d) different chemical properties
- Meso-Tartaric acid is optically inactive due to the presence of
a) Molecular asymmetry b) Presence of chirality
c) External compensation d) internal compensation

7. Which of the following is false regarding Non-Ideal solutions?

- a) They do not obey Raoult's law
b) $\Delta H_{\text{mixing}} = 0$
c) $\Delta V_{\text{mixing}} \neq 0$
d) They form azeotropes

8. Which of the following is a colligative property

- a) Osmotic pressure
b) Boiling point
c) Vapour pressure
d) Freezing point

9. Colloidal particles

- a) Scatter light
b) not scatter light
c) absorb heat
d) evolve heat

10. Chemisorption process

- a) Involves the weak attractive interactions between adsorbent and adsorbate
b) is irreversible in nature
c) Decreases with increase of temperature
d) Involves multilayer formation of adsorbent on adsorbate

PART - B

ANSWER ALL THE QUESTIONS

(5X7=35)

11. a) Derive de-Broglie wave equation and mention their significance.

(OR)

b) Give a brief note on i) Photo electric effect ii) Heisenberg's uncertainty principle

12. a) Describe the types of ligands.

(OR)

b) Comment on the postulates and limitations of Valence bond theory.

13. a) Brief account on Walden inversion.

(OR)

b) What are the possible conformers for ethane? Discuss the stability and structure.

14. a) Discuss about the law of osmotic pressure.

(OR)

b) Derive Duhem Margules equation.

15. a) What is emulsion? Discuss about their types

(OR)

b) Distinguish between physisorption and chemisorption.

PART - C

ANSWER ANY THREE QUESTIONS

(3X10=30)

16. What is Schrodinger wave equation? Write the one dimensional Schrodinger equation? Mention the physical significance of wave function.

17. Explain the types of isomerism in coordination compounds.

18. Illustrate the conformational analysis of cyclohexane with energy diagram.

19. Determination of molecular weight using depression in freezing point.

20. Describe the Freundlich adsorption isotherm.