



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



(For Candidates admitted from 2018-2019 onwards)

UG DEGREE EXAMINATIONS APRIL – 2021

B.SC - CHEMISTRY

GENERAL CHEMISTRY - II

Time: 3 Hrs

Max.Marks: 75

PART - A

CHOOSE THE CORRECT ANSWER

(10X1=10)

- Which of the following statement is correct?
 - Zinc reacts with conc. HNO_3 to produce of mixture of NO and NO_2 .
 - Zinc reacts with dil. HNO_3 to produce N_2 .
 - Zinc reacts with very dil. HNO_3 to produce NH_4NO_3
 - Zinc reacts with dil. HNO_3 to produce NO_2 .
- The lanthanide contraction is related to:
 - Density
 - Valence electrons
 - Ionic radii
 - Nuclear masses of the various members of the series.
- What purpose does sulphuric acid play in the nitration of benzene?
 - It is the solvent
 - It protonates nitric acid which leads to loose of water and formation of the nitronium ion
 - It protonates the benzene ring
 - It accepts a proton from nitric acid
- Which one of the following is least reactive towards electrophilic aromatic substitution
 - nitro benzene
 - ethyl benzene
 - Phenol
 - benzene
- Which of the following has highest boiling point
 - 2-propanol
 - propylene glycol
 - glycerol
 - 1-propanol
- Pick out the most acidic alcohol
 - 1-chloroethanol
 - ethanol
 - 1,1-dichloromethanol
 - 2-chloroethanol
- The rate law relates the rate of the chemical reaction to _____
 - the concentrations of the reactants
 - the temperature
 - the activation energy
 - the reaction mechanism

8. The reaction in which all reactants are in the same phase is called
a) Elementary b) bimolecular c) homogeneous d) heterogeneous
9. A thermos flask is an example of
a) Isolated system b) Closed system c) open system d) Heterogeneous system
10. Thermodynamics is applicable to
a) Microscopic systems only b) Macroscopic systems only
c) homogeneous systems only d) Heterogeneous systems only

PART - B

ANSWER ALL THE QUESTIONS

(5X7=35)

11. a) Give evidences for the existence of Hg^{2+} ion.

(OR)

b) What is lanthanide contraction? Point out its consequences

12. a) Describe the methods of preparation of benzene.

(OR)

b) Illustrate the chemical properties of naphthalene

13. a) Account for hydrogen bonding and acidic nature of alcohols

(OR)

b) How is phenol prepared? Describe its structure.

14. a) Derive an expression for the rate constant of first order reaction

(OR)

b) Define the following:

i) Positive catalyst

ii) Catalytic promoters

iii) Catalytic poison

15. a) State the various statements of first law of thermodynamics

(OR)

b) Deduce a relation between ΔH and ΔE

PART - C

ANSWER ANY THREE QUESTIONS

(3X10=30)

16. Name the ores of molybdenum. How is molybdenum extracted from its chief ore?

17. Explain the structure, aromatic character and uses of naphthalene.

18. Suggest a suitable mechanism for the following reaction

i) Claisen rearrangement

ii) Reimer-Tiemann reaction

19. Write Arrhenius equation for the effect of temperature on rate of reaction.

20. Derive an expression for work done in isothermal reversible expansion of a gas.