SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - II
20UCHCT2003 - General Chemistry - III

Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. a) Discuss Markovnikov's rule by taking propene as example.
   b) Describe the classification of alkadienes and highlight the structure and preparation of allene. (2+3)
2. a) Sketch the zeroth law of thermodynamics.
   b) Show some difference in intensive and extensive properties with suitable example. (2+3)
3. Relate the expression for the variation of Enthalpy of reaction with temperature.
4. Describe the use of significant figures to describe the uncertainty associated with a given experimental measurements.
5. a) Arrange CH_3 - C $\equiv$ CH, H_3C - CH_3 and $H_2C = CH_2$ in the increasing order of acidities.Substantiate your answer.
   b) Give any two uses of acetylene. (3+2)
6. Solve the enthalpies of combustion of carbon, hydrogen and sucrose are -393.5, -286.2 and -5644.2 kJmol^{-1} respectively. Calculate the enthalpy of formation of sucrose.
7. Relate the relation between C_p and C_v.
8. What is meant by the term confidence limit? How is it determined ? Give its significance.

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. a) Interpret the ozonolysis help in distinguishing alkene from alkyne. Give appropriate equations.
   b) Describe the Diels – Alder reaction.
   c) Predict the products possible for the dehydro halogenation of 2-bromobutane. Substantiate your answer. (3+3+4)

Contd...

10. a) Relate the acidity of alkynes with alkane and alkenes.
    b) predict the chemical reaction of HC≡CH with amm. Cu_2Cl_2 solution
    c) Predict the Acetylene is a stronger acid than ammonia, but weaker acid than water. (3+3+4)

11. a) Distinguish the isothermal and adiabatic expansions.
    b) Evaluate the expression for Joule–Thomson coefficient and inversion temperature. (5+5)

12. a) Apply the Bomb calorimeter to measure the enthalpy of combustion.
    b) Compute the resonance energy of a compound by the bond energy values. (7+3)

13. Assess some types of errors are generally involved in analytical work. Give examples. Distinguish carefully between determinate and indeterminate errors

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