B.Sc. DEGREE EXAMINATION,APRIL 2020
I Year II Semester
General Chemistry III

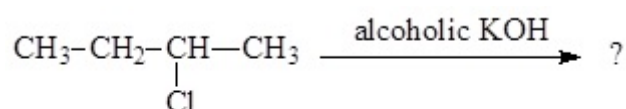**Time : 3 Hours** **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Predict the major and minor product in the following reaction.

$$CH_3-CH_2-CH-CH_3 \xrightarrow{\text{alcoholic KOH}} ?$$
$$\underset{Cl}{|}$$

2. What is Diels-Alder reaction? Give an example.
3. How will you prove the acidic nature of C-H bond in acetylene?
4. What is the role of Hg^{2+} ion in the nucleophilic addition reaction of alkynes?
5. State Zeroth law of thermodynamics.
6. What is meant by isothermal process?
7. What is the difference between exothermic and endothermic reaction?
8. Define bond dissociation energy.
9. Differentiate accuracy and precision.
10. From the following figures of ages of some students calculate the mean age:

Age in years	18	15	13	18	16	17	15

11. What happens when prop-1-ene undergoes ozonolysis?
12. State Joule's law.

Section B $(5 \times 4 = 20)$ Marks
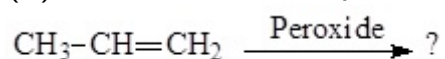
Answer any **FIVE** questions

13. State and explain Markownikoff's rule with mechanism using a suitable example.
14. Discuss the addition reaction mechanism of the following reagents with acetylene: (a) Hydrochloric acid (b) diborane
15. Deduce the relation between Cp and Cv.
16. Explain the variation of enthalpy of reaction with temperature.
17. How is median and standard deviation calculated? Explain with an example.

18. Discuss the effect of temperature on 1,2- and 1,4-addition to conjugated dienes.

19. Write the differences between (a) reversible and irreversible process (b) intensive and extensive properties with example for each.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. (a) State and explain Saytzeff's and Hoffmann's rule with an example.(6)
    (b) Predict the main product and discuss the reaction mechanism.(4)

    $$CH_3-CH=CH_2 \xrightarrow{\text{Peroxide}} ?$$

21. What happens when

    (a) Propylene is treated with chlorine water

    (b) Acetylene is subjected to ozonolysis

    (c) Acetylene is treated with Br_2 in CCl_4.

    (d) 2-Butyne is treated with Pd/C (Lindlar catalyst and hydrogen)

22. (a) State and explain the basic principle of Joule-Thomson effect? (4)

    (b) Derive the P–V, P–T, T–V relationships. (6)

23. Discuss the types of heat of reaction with suitable example for each.

24. List the types of errors and explain the methods of minimizing errors.

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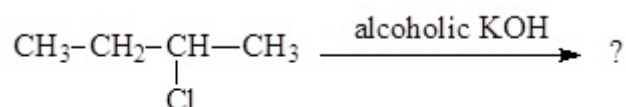**I Year II Semester**
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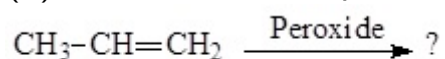
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