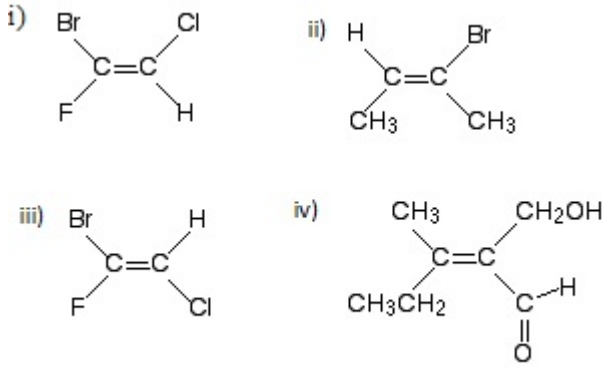
SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS APRIL-2022
SEMESTER - II
20UCHCT2004 - General Chemistry - IV

Total Duration : 3 Hrs. **Total Marks : 60**

Section A

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

1. a) Define Geometrical isomerism (2)
   b) What is the difference between maleic acid and fumaric acid? (3)
2. Describe the determination of viscosity of liquid using Ostwald viscometer.
3. Briefly explain the anomalous behaviour of lithium and beryllium.
4. Describe the factors affecting degree of ionisation.
5. Assign the (Z) or (E) configuration to each of the following compounds.



6. State Trouton's rule & How do you find the molar heat of vaporization of water? (boiling point of water is 100°C)
7. Why is LiF almost insoluble in water whereas LiCl soluble not only in water but also in acetone? (3)
   Find out the oxidation state of sodium in Na_2O_2. (2)
8. The polyprotic acid H_2SO_4 can ionize two times ($K_{a1}>>1$, $K_{a2}=1.1\text{x}10^{-2}$). If we start with $9.50\text{x}10^{-3M}$ solution of H_2SO_4, What are the final concentrations of HSO_{4^-}, $SO_{4^{2-}}$, and H_3O+ ?

Section B

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

9. a) Describe optical isomerism with suitable examples (8)
   b) How do you find the specific angle of rotation? (2)

Contd...

10. Find the rms velocity for (a) H_2 and (b) O_2 molecules at 27°C. (6)
    How Law of Equipartition of Energy is related to degree of freedom? (4)
11. Explain the classification of liquid crystals and their applications
12. Describe the differences in structure between BeH_2 & CaH_2. (5)
    How does the basic strength of Group-2 hydroxides vary within the group? (5)
13. How do you write the ionization equation for acids and bases? (6)
    Calculate the hydrogen ion concentration in moles per litre of
    a solution whose pH is 5.4 (4)

*****