



DIRECTORATE OF DISTANCE EDUCATION

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M.Sc. (Chemistry) Assignment, December, 2021 First Year

COURSE CODE: CHE101

1. Explain the term fugacity. How will you determine fugacity of a gas in mixture of gases? Discuss.
2. Define mass and number average molecular weights of polymers. Discuss viscometric methods of determination of molecular weight of polymers.
3. Find out expression for thickness of ionic atmosphere in dilute solution of electrolytes.

COURSE CODE: CHE102

1. What are the salient features of VSEPR theory? Discuss the shape of ICl_2 and SF_4
2. Discuss the ion exchange method for the isolation of Lanthanide. Which one is more basic $\text{La}(\text{OH})_3$ or $\text{Lu}(\text{OH})_3$ and why?
3. What do you mean by concept of symmetry? Explain with example.

COURSE CODE: CHE103

1. State Huckel's rule of Aromaticity.
2. Show that Hammett equation represents a linear free energy relationship.
3. Explain the factors influencing E_1 reaction rate.

COURSE CODE: CHE105

1. Discuss the first order Perturbation theory and its application to Helium atom.
2. Discuss LCAO-MO Theory and apply to H_2 molecule to obtain MO wave functions and energy eigen values.
3. Apply HMO theory to allyl free radical to obtain:
 - (a) HMO wave function
 - (b) HMO energy level
 - (c) Electron densities
 - (d) π - bond orders

COURSE CODE: CHE106

1. Explain, in detail, the Limitation of Crystal Field Theory.
2. Explain charge transfer spectra and type of spectra.
3. Explain the step-wise and overall formation constant. Discuss the factors affecting stability.

COURSE CODE: CHE107

1. Write down the classification of alkaloids. Derive the structure of Atropine.
2. How are amino acids related to proteins? Describe the important properties and reactions of proteins.
3. Differentiate between DNA and RNA. What part do they play in biological chemistry?

Note: Last date of Assignment submission (By Post only) - 30.12.2021
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