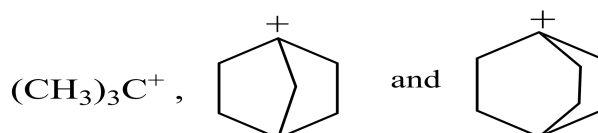




## I. 2<sup>nd</sup> SEM (NEP) MAJOR

### Organic

- a. Sketch FMOs and energy level of acyclic p-system for ethylene, allycation, ally carbanion, ally radical, 1,3-butadiene and penta-1,3-dienyl cation. Show HOMO, LUMO or SOMO where it required. 3
- b. Draw frost energy diagram for cycloopenyl cation and anion. 2
- c. Arrange the following carbocations according to the stability and explain the reason. 2



- d. Explain non-classical carbocation with suitable example? 2
- e. What is carbonium ion? 1

### SEC

- a. A baker is making a cake and adds to the mixture 100.0 gm of flour, 40.2 gm of sugar and 50.134 gm of egg. Calculate the total mass of the cake to the correct number of decimal places. 2
- b. Write down the approximate representation of  $\frac{2}{3}$  correct to four significant figures and then find relative error. 2
- c. What do you mean by the term “Accuracy” and “precision”. Write down the formula of “standard deviation”. 2

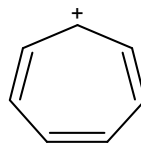
## II. 2<sup>nd</sup> SEM (NEP) MINOR

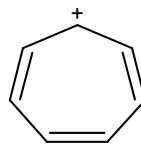
### Inorganic

- a. What is ionization potential? Explain with an example. 2
- b. What is the unit of ionization potential? 1
- c. How does ionization potential vary along a period in the periodic table? 1
- d. Between ‘N’ and ‘O’ which is having higher ionization potential and why? 1

### Organic

- e. Write down the canonical structures of  $\text{CH}_3\text{COOH}$  and  $\text{CH}_3\text{COO}^-$ . In which case resonance is more important? 2
- f) Compare the basicity of the following amines in aqueous medium? -  $(\text{CH}_3)_2\text{NH}$ ,  $\text{CH}_3\text{NH}_2$ ,  $(\text{CH}_3)_3\text{N}$   $1\frac{1}{2}$



- g) Which of the following carbocation is more stable and why?  and  $\text{H}_2\text{C}=\text{CH}-\text{CH}_2^+$   $1\frac{1}{2}$

## III. 2<sup>nd</sup> SEM (NEP) MDC

- a. Write down a short note on the origin of coal. 1
- b. Write down a short note on the origin of petroleum. 1
- c. What is bio-fertilizers? Write down the formula of urea. 1
- d. Write down the full form of LPG, LNG and CNG. 1
- e. What is the purpose of the dye in our daily life? 1

Students have to submit their assignment on or before **08/08/2024**.