

Roll No.

Total Pages : 4

BAE/A-20

511

CHEMISTRY
(Organic Chemistry)
Paper-III

Time : Three Hours]

[Maximum Marks : 30

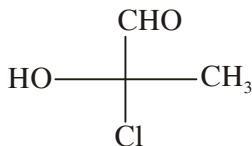
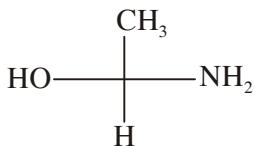
Note : Attempt *five* questions in all selecting *one* question from each section.

SECTION-I

1. (a) Write a note on localised and delocalised chemical bond.
(b) What are Electrophiles ? Give types of electrophiles with examples.
(c) Compare Singlet and Triplet carbenes. (2×3=6)
2. (a) Write a note on Inductive effects.
(b) What is a homolytic bond fission ? Name the species formed because of homolytic bond fission.
(c) Compare the stability of 1°, 2° and 3° carbocations. (2×3=6)

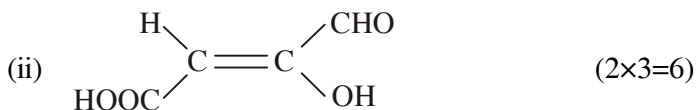
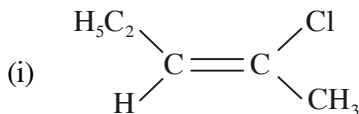
SECTION-II

3. (a) Give R and S configuration for the following :



- (b) Define (i) Position isomerism, and (ii) Racemization.
- (c) Compare the properties of enantiomers and diastereomers. (2×3=6)

4. (a) Draw the conformations of *n*-butane.
- (b) Write about (i) Meso compounds, and (ii) Chiral structure.
- (c) Assign E or Z to the following :

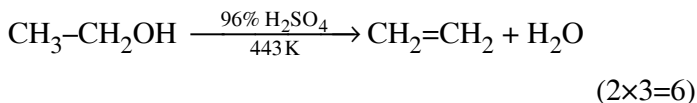


SECTION-III

5. (a) Write about Baeyer's Strain theory and its limitations.
- (b) Write equations for
- (i) Wurtz reaction.
- (ii) Kolbe's electrolytic reaction.
- (c) Write the mechanism of halogenation of alkane. (2×3=6)

6. (a) Discuss Sachse-Mohr theory.
- (b) Complete the equations :
- (i) $\text{CH}_3\text{—CH=CH}_2 + \text{HI} \longrightarrow$
- (ii) $\text{CH}_3\text{—CH=CH}_2 + \text{HBr} \xrightarrow{\text{Peroxide}}$

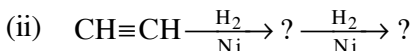
- (c) Write the mechanism of the reaction



SECTION-IV

7. (a) Define Annulenes and give examples.

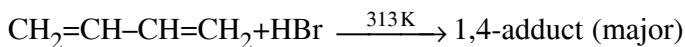
- (b) Complete the equation



- (c) Comment upon acidity of terminal alkynes. $(2 \times 3 = 6)$

8. (a) Give the classification of dienes.

- (b) Discuss the mechanism of

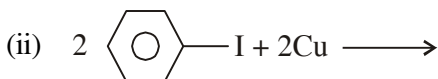
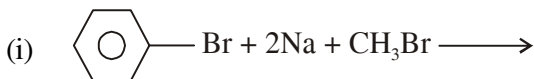


- (c) Write about the structure of acetylene. $(2 \times 3 = 6)$

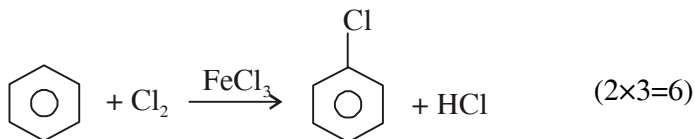
SECTION-V

9. (a) Compare the main features of $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ mechanisms.

- (b) Complete the equations :



(c) Write the mechanism of



10. (a) Write the mechanism of Friedal-Craft alkylation of benzene.

(b) Explain with examples :

(i) Activating substituents.

(ii) Deactivating substituents.

(c) Write about low reactivity of vinyl halides. (2×3=6)
