Avinashilingam Institute for Home Science and Higher Education for Women
[Deemed to be University] Coimbatore-641 043

Bachelor's Degree Examination – November 2018

III Semester

Class : II UG | **Time: 3 hours**
Major : Chemistry | **Max. Marks: 100**

15BCHC07 Theoretical Organic Chemistry

Part-A **10 x 1=10**
Choose the correct answer

1. Hyper conjugation would be exhibited by
   a) Toluene b) Methane c) Ethanol d) Ethylene

2. Which of the following is the strong nucleophile?
   a) $(CH3)_3CO^-$ b) $(CH_3)_2 CHO^-$ c) OH^- d) CN^-

3. Identify the incorrect statement regarding aromaticity
   a) It is the extra stability prossessed by a molecule
   b) P-orbitals must be planar and overlap
   c) Cyclic delocalization takes place
   d) It does not follow Huckel's rule

4. Hybridization of Carbon in benzene is
   a) dsp^2 b) sp c) sp^2 d) sp^3

5. Which of the following statements regarding the E1 mechanism is wrong?
   a) Reactions by the E1mechanism are unimolecular in the rate determing step
   b) Reactions by the E1 mechanism are generally first order
   c) Reactions by the E1 mechanism usually occur in one step
   d) Reaction by the E1 mechanism are multi-step mechanism

6. Anti-markovnikoff's addition of HBr is not observed in
   a) propene b) 1-butene c) 2-butene d) 2-pentene

7. Picric acid is
   a) monocarboxylic acid b) dicarboxylic acid
   c) aromatic carboxylic acid d) none of these

8 .Which of the following is used as a reactant for the nitration of benzene to nitro benzene?
   a)HNO_2 b) HNO_3 c) H_2SO_4 d) mixture of HNO_3 and H_2SO_4

9. Loss of a small molecule from an organic substrate is
   a) elimination b) substitution c) addition d) both a and b

10. Hoffmann elimination is a nucleophilic reaction involving
    a) α–elimination b) β–elimination c) γ–elimination d) δ–elimination

Part B

5 X 6=30

Answer the following

Answer should not exceed 400 words or two pages

11. a) Explain inductive effect with examples.

(or)

11. b) What are free radicals? Give suitable examples.

12. a) Explain the mechanism of sulphonation of benzene

(or)

12. b) State and explain Huckel's rule with an example.

13. a) Discuss the role of NBS in allyic substitution reaction.

(or)

13. b) Explain the mechanism of E_1 and E_2

14 .a) How are nitroalkanes prepared

(or)

14. b) Explain the preparation of picric acid.

15. a) Discuss the Sandmeyer reaction

(or)

15. b) Explain Hoffmann rearrangement with suitable example.

Part C

5 x 12=60

Answer the following

Answer should not exceed 800 words or four pages

16. a) Discuss about preparation, properties and uses of westron,westrosol and freon?

(or)

16. b) Discuss about Inductomeric and Mesomeric effects with suitable examples.

17. a) (i) Give an account on non – benzenoid aromatic compounds. (6)
(ii) Explain structure and stability of benzene. (6)

(or)

17.b) Discuss the mechanism of
(i)Friedel-crafts acylation(6)
(ii)Friedel- crafts alkylation(6)

18. a) (i) Explain the stability of carbocations (6)
(ii) Explain the reactions of diazonium salts.(6)

(or)

18. b) Explain Saytzeff's and Haffmann's rule with an example.

19. a) How are nitroarenes prepared? Explain their properties.

(or)

19. b) How will you prepare halonitroarenes? Explain the structure and physical properties.

20. a) Describe (i) Hoffmann degradation (ii) effect of substitituents on basicity.

(or)

20. b) (i) Write the preparation and synthetic uses of diazonium salts. (6)
(ii) How will you prepare 2° and 3° amines?(6)