Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore-641 043

Bachelor's Degree Examination – November 2017
V Semester

Class : III UG **Time :3 Hours**
Major : Chemistry **Max. Marks: 100**

15BCH14 Selected Topics in Organic Chemistry
Part- A **10 x 1=10**
Choose the correct answer

1. How many resonance structures are there for naphthalene?
   a. two b. three
   c. four d. five

2. Phenanthrene on treatment with concentrated nitric acid and concentrated sulphuric acid gives----- Phenanthrene
   a. 1-nitro b. 5-nitro
   c. 7-nitro d. 9-nitro

3. The rearrangement in which 1,2-diol rearranges in presence of an acid to form a ketone is called
   a. Benzidine b. Wittig
   c. Pinacol-pinacolone d. claisen

4. The acid catalyzed rearrangement of hydrazo benzene gives
   a. Benzidine b. benzamide
   c. benzaldehyde d. benzoic acid

5. Grignard reagent reacts with carbondioxide to give
   a. alcohol b. carboxylic acid
   c. ketone d. ester

6. Mercaptans are otherwise known as
   a. thiols b. thioethers
   c. sulphonic acids d. thiophene

7. The compound which is optically active
   a. propanoic acid b. 3-chloropropene
   c. meso tartaric acid d. Lactic acid

8. The optical activity in a compound is detected using
   a. spectrometer b. photometer
   c. polarimeter d. colorimeter

9. Which alkene does not show geometric isomerism
   a. propene b. 3-hexene
   c. fumaric acid d. 1,2-dichloro ethene

10. In allene $CH_2=C=CH_2$,the hybridization of central carbon atom is
    a. sp b. sp^2
    c. sp^3 d. dsp^2

Part B 5 X 6=30

Answer the following

Answer should not exceed 400 words or two pages

11.a. Write a short note on the Haworth synthesis of phenanthrene

(or)

11.b. Discuss any two synthetic application each for (i) $LiAlH_4$
(ii) Raney Nickel

12.a. Discuss the mechanism of Beckmann rearrangement

(or)

12.b. Illustrate with an example Claisen reaction.

13.a. Explain with mechanism the reaction of methyl lithium with ester.

(or)

13.b. Discuss the preparation of Grignard reagent .

14.a. Explain the various symmetry elements

(or)

14.b. What are the properties of enantiomers and diastereo isomers.

15.a. Discuss the geometric isomerism in maleic acid and fumaric acid.

(or)

15.b. Explain the geometrical isomerism exhibited by ketoximes.

Part C 5 x 12=60

Answer the following

Answer should not exceed 800 words or four pages

16. a. Complete the following reactions of anthracene with
(i) nitric acid and acetic anhydride (ii) maleic anhydride
(iii) Na and ethanol (iv). Sodium dichromate and H_2SO_4

(or)

16. b. (i) Discuss the molecular orbital structure of naphthalene.
(ii) Write a short note on reduction and oxidation reactions of naphthalene.

17.a. Discuss Pinacol-Pinacolone rearrangement and Benzidine rearrangement

(or)

17.b. Write a short note on (i) Cope rearrangement (ii) Benzilic acid reaction
(iii) Wittig reaction.

18. a. Discuss any two method of preparation and any four reactions of thiols .

(or)

18.b. Write a short note on (i) Reformatsky reaction
(ii) action of methyl magnesium iodide with aldehydes and ketones

19. a. Explain the optical activity exihibited by tartaric acid , lactic acid and 1,2-trans cyclopropane - dicarboxylic acid.

(or)

19.b. Discuss the various method of resolution of racemic mixture.

20. a. Explain in detail the method used to distinguish geometric isomers.

(or)

20.b. Discuss in details the optical activity in allenes and biphenyls

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