



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – January 2021
V Semester

Class : III UG
Major : Chemistry

Time : 3 Hours
Max. Marks: 100

18BCHC14 Selected Topics in Organic Chemistry

PART A
Choose the Correct Answer

10 x 1 = 10

- Select the one which is a polycyclic aromatic hydrocarbon composed of three fused benzene rings
 - Quanthrene
 - Benzanthrene
 - Phenanthrene
 - Pentanthrene
- Find out the one which is a solid polycyclic aromatic hydrocarbon (PAH) of formula $C_{14}H_{10}$, consisting of three fused benzene rings.
 - Anthracene
 - Naphthalene
 - Polystyrene
 - Polyethyleneterephthalate
- Choose the one which is a reaction in organic chemistry in which an α -diazocarbonyl compound is converted into a ketene by loss of dinitrogen with accompanying 1,2-rearrangement.
 - The claisen rearrangement
 - The Palmer rearrangement
 - The Malthusian rearrangement
 - The Wolff rearrangement
- Indicate the one which is the thermal isomerization of a 1,5-diene leading to a regioisomeric 1,5-diene.
 - The Den rearrangement
 - The Cope Rearrangement
 - The Wolff rearrangement
 - The Benzidine rearrangement
- Name the one which is a chemical compound with the generic formula $R-Mg-X$, where X is a halogen and R is an organic group
 - Arnold compound
 - The Aanthracene compound
 - The Bernard compound
 - Grignard compound
- Select the one which is an organic reaction which condenses aldehydes or ketones with α -halo esters using metallic zinc to form β -hydroxy-esters:
 - The Reformatsky reaction
 - The Alexive reaction
 - The Rutherford reaction
 - The Dawson reaction
- Specify the one which exists in two stereoisomers that are mirror images of each other, called enantiomers;
 - A polymer molecule
 - A Optical molecule
 - A chiral molecule
 - A Opal molecule
- Pick up the one which is the inversion of a chiral center in a molecule in a chemical reaction.
 - Warner inversion
 - Walden inversion
 - Wupe inversion
 - Claisen inversion
- Name the compounds which have at least two molecular rings with only one common atom.
 - Cairo
 - Miro
 - Quiro
 - Spiro
- Select the one which refers to the spatial arrangement of the atoms of a chiral molecular entity and its stereochemical description e.g. R or S, referring to Rectus, or Sinister respectively.
 - An absolute configuration
 - A separate configuration
 - A completer configuration
 - A confine configuration

Part B

5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

- 11.a. Write the reactions of LiAlH_4 and lead tetra acetate.
(or)
- 11.b. Explain carcinogenicity and give the. Reactions of H_2/R array ni
- 12.a. Write about the Wolff rearrangement reaction
(or)
- 12.b. Write about the Beckmann rearrangement reaction.
- 13.a. Describe the properties of chemical reations of i. thioester ii. sulphonacides
(or)
- 13.b. Write the important chemical reactions of thiol.
- 14.a. Give a brief description on the conditions for optical activity in solid gaseous phases.
(or)
- 14.b. Write about Walden inversion.
- 15.a. Describe the optical activity in biphenyls.
(or)
- 15.b. Describe the geometrical isomerism in maleic acid & turmeric acids.

Part C

5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

- 16.a. Explain the structural elucidation of naphthalene.
(or)
- 16.b. Explain the structural elucidation of anthracene.
- 17.a. Explain the mechanism of pinacol – pinacolone rearrangement
(or)
- 17.b. Give the mechanism of cope rearrangement and benzidine rearrangement
- 18.a. Explain the preparation and chemical reactions of organolithium compounds
(or)
- 18.b. Explain the preparation and chemical reactions of sulphonic acids and sulphaguaridine.
- 19.a. Explain about the optical isomerism of tartaric acid
(or)
- 19.b. Explain the optical activity in symmetric and asymmetric systems based on lactic acid
- 20.a. Discuss atleast four methods of differentiating geometrical isomers.
(or)
- 20.b. Discuss relative and absolute configuration.
