

Gurudas College
B. Sc. Semester-IV Internal Examination 2020
CHEMISTRY – HONOURS
Paper: VIII (Organic)

Time: 2 Hrs.

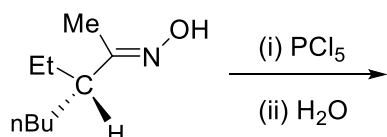
Full Marks: 50

Group–A (Theory)

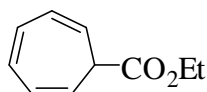
Answer any five questions

5×5=25

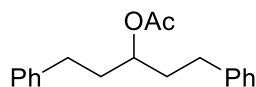
1. What do you mean by (i) chromophore (ii) auxochrome and (iii) red shift in connection with UV absorption spectroscopy?
2. Distinguish vinyl acetate and methyl acrylate by IR spectroscopy.
3. A signal has been found to occur at 120 Hz downfield from TMS in a 60 MHz NMR machine
 - (i) What is its chemical shift in δ ppm?
 - (ii) What will be its chemical shift if the instrument is operated as 100 MHz?
 - (iii) How many Hz downfield from TMS would the signal be in 200 MHz spectrometer?
4. Predict the product of the following reaction and give mechanism.



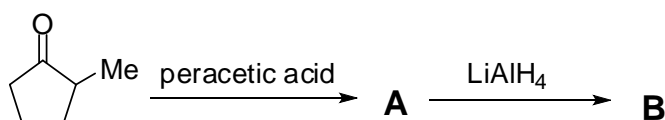
5. How will you prepare phenol from benzene via cumene? Give the mechanism of the reaction involved.
6. Show how the following compound could be synthesized in one step from benzene. Give mechanism of the reaction.



7. Describe the synthesis of the following compound with proper retrosynthetic analysis.



8. Identify the products **A-B** in the following sequence of reactions:



Group–B (Practical)

Answer any three questions

5×3=15

9. Write the chemical equation for the reaction of AgCl with excess of NH_4OH .
10. (a) Write down the chemical formula of sodium nitroprusside.

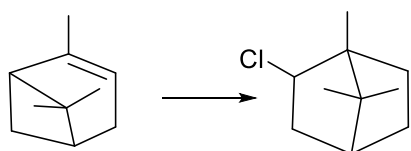
- (b) Sodium nitroprusside solution is added to Sodium (Na) fusion extract of an organic compound containing Sulphur (S). Write down the observation and reactions involved.
11. Write down the full name and the structure of the reagent used to detect the presence of carbonyl group in an organic compound. Also write down the reaction when the reagent reacts with any carbonyl compound.
 12. Write down red-dye test for the detection of aromatic amine (-NH₂) group in an organic compound with equation.

Group-C (Internal Assessment)

Answer any two questions

5×2=10

13. Why TMS is used as reference compound for ¹H-NMR spectroscopy?
14. Carry out the following conversion with suitable mechanism:



15. Describe the synthesis of the following compound with proper retrosynthetic analysis.

