



B.Sc. (Semester – VI) Examination, April/May 2019
CHEMISTRY (Paper – III) (6 Units)
Organic Chemistry

Duration : 2 Hours

Total Marks : 80

Instructions : 1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Answers to the two Sections should be written on separate answer books.**

SECTION – I (40 Marks)

1. Answer **any four** of the following questions : 16
- i) With suitable examples explain the D and L system of nomenclature in Carbohydrates.
 - ii) Explain chain lengthening by Killiani-Fisher synthesis using a suitable example.
 - iii) What is the special isoprene rule ? Explain with a suitable example.
 - iv) Write a note on isomerism in Citral. Give structures and names.
 - v) Explain the acidity of α -protons. Identify the number of acidic protons in the following :
 - a) Acetophenone
 - b) Benzaldehyde.
 - vi) Explain the synthesis of ethyl acetoacetate by Claisen Condensation. Give a detailed mechanism.
2. A) i) Explain the mechanism of mutarotation in carbohydrates using a suitable example. 4
- ii) Briefly explain the cleaning action of soap. 2
- OR
- iii) Give analytical evidence for the configuration of glucose from the known structure of D-Arabinose. 4
- iv) How will you synthesise 4-phenyl butanoic acid from diethyl malonate ? 2
- B) i) How will you prove the presence of a carbonyl group which is ketonic in Camphor ? 4
- ii) How will you synthesise 2-benzyl cyclohexanone using the enamine reaction ? 2



3. A) i) Give analytical evidence to prove the ring size of the fructose unit in sucrose. 4
- ii) How will you convert benzaldehyde to acetophenone using 1,3-dithianes ? 2

OR

- iii) Write a synthesis for α -terpineol. 4
- iv) How will you synthesise 2-hexanone from ethyl acetoacetate ? 2
- B) i) Give analytical evidence to prove the presence of a double bond and a p-Cymene nucleus in α -Pinene. 4
- ii) What are Fatty acids ? Give example. 2

SECTION - II

(40 Marks)

4. Answer **any four** of the following : 16

- a) Explain why p-nitrophenol is colourless but yellow in alkaline solution.
- b) Define diuretics and antineoplastic agents. Give the name and the structure of one drug of each type.
- c) Give one example each of natural and synthetic rubber.
- d) Give any two methods of preparation of phosphines.
- e) Give the synthesis of Alizarin and its use.
- f) Give the following reactions of methane sulphonic acid :
- i) PCl_5
- ii) Pb
- iii) NH_3
- iv) $\text{C}_2\text{H}_5\text{OH}$.

5. A) i) With reference to photochemical reaction explain α -cleavage of 3-Hexanone. 3
- ii) Give the reaction showing formation of Urea formaldehyde resin. 3

OR

- iii) What are vat dyes ? Give one example with structure. 4
- iv) Give the synthesis of Fluorescein. 2
- B) i) Classify cardiovascular drugs giving one example of each. 4
- ii) Give the synthesis of phenolphthalein. 2



6. A) i) Explain Witting reaction giving suitable example. 4
ii) Give the synthesis of metronidazole. 2

OR

- iii) Give the synthesis of malachite green and its application. 4
iv) What are sulphonamides ? Give one example. 2
B) i) What are antifungal agents ? Give one example. 2
ii) Complete the following reactions : 4

