

2019

B.Sc. (Hons.)

4th Semester Examination

BIOTECHNOLOGY

Paper - C10T

Chemistry-2 (Organic Chemistry)

Full Marks : 40

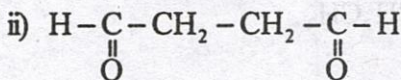
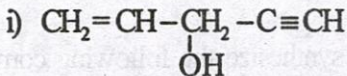
Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

1. Answer any five questions from the following :

5×2=10

(a) Give the IUPAC nomenclature of the following compounds : 2

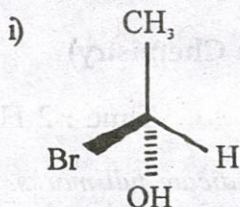


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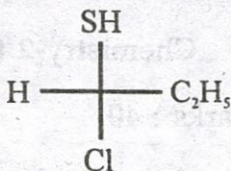
(b) Discuss the influence of solvent polarity on the rate of S_N^1 reaction. 2

(c) Define the term 'prochirality' with suitable example. 1+1

(d) Assign 'R' and 'S' configuration to the following compounds : 1+1



ii)



(e) Discuss the stereoelectronic requirements for $E1$ elimination. Give suitable example in favor of your answer. 1+1

(f) How will you prepare 2-propanol from acetaldehyde? 2

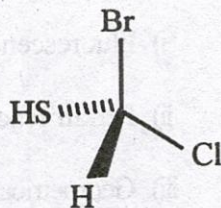
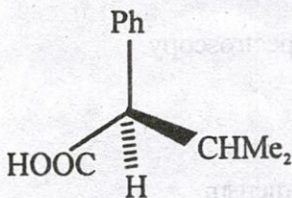
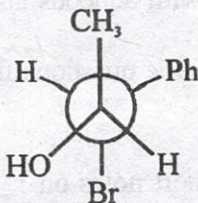
(g) What do you mean by 'diastereomers'? Give an example. 1+1

(h) How will you synthesize the following compound : $CH_3-OCH_2CH_3$ 2

2. Answer any *four* questions from the following :

4×5=20

- (a) Discuss the factors on which the rate of S_N^2 reaction depends. 5
- (b) What is aldol condensation? Give suitable example. What is the rate determining step of this reaction? 2+1+2
- (c) Convert the following into Fischer projection and state whether the chiral centres are 'R' or 'S'. 2+1½+1½



- (d) How will you carry out the following conversions? 1½+2+1½
- i) Benzil \rightarrow Benzilic Acid
 - ii) 1-pentyne \rightarrow 2-pentyne

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iii) Phenol \rightarrow Anisole

(e) i) Discuss separately the outcome of reactions when acetone is treated with halogen in presence of acid and alkali. 3

ii) Give an example of crossed cannizaro reaction. 2

(f) i) What happens when anisole and benzoic acid are treated with Na/liq. NH_3 separately? 3

ii) What happens when p-chloronitrobenzene is treated with aqueous alkali? 2

3. Answer any *one* questions from the following:

1 \times 10=10

(a) Write short notes on : 3+2+2

i) Fluorescence spectroscopy

ii) Perkin reaction

iii) Geometrical isomerism

b) What is meant by Ipsso substitution? Give suitable example to support your answer. 1+2