

Seat No: _____

127
E+G



No. of printed pages : [04]

SARDAR PATEL UNIVERSITY
B. Sc. IVth - Semester Examination
US04CCHE21 : ORGANIC CHEMISTRY

Date : 09 - 04 - 2022,

Saturday

Time : 03:00 to 05:00 p.m.

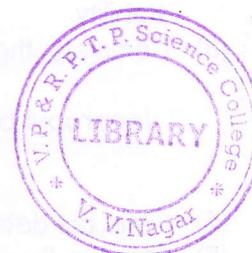
Total Marks: 70

Note : (1) All questions are to be attempted. (2) Figures to the right indicate marks.

Q.1 Choose the correct option for the following

[10]

- (1) Which Conformer of Cyclohexane is most stable?
(a) Chair (b) Boat
(c) Half-Chair (d) Twist boat
- (2) How many stereo isomers are possible for 2, 3-dichloro pentane.
(a) 2 (b) 3
(c) 4 (d) 8
- (3) Optical Isomers that are mirror image of each other are called
(a) Tautomers (b) Diastereomers
(c) Enantiomers (d) Metamers
- (4) Which of the following compound is suitable for aldol condensation.
(a) Formaldehyde (b) Acetaldehyde
(c) Benzaldehyde (d) Di-phenyl ketone
- (5) Phenol with Kolbe reaction gives
(a) Benzoic acid (b) Cinnamic acid
(c) Salicylaldehyde (d) Salicylic acid
- (6) (+) Glucose can be converted into (-) Arabinose by
(a) Killiani-Fisher synthesis (b) Ruff-degradation
(c) Haworth synthesis (d) Hudson method
- (7) Which of the following is 2-Ketohexose.
(a) Mannose (b) Galactose
(c) Glucose (d) Fructose
- (8) Which of the following is a disaccharide.
(a) Lactose (b) Glucose
(c) Fructose (d) Cellulose
- (9) Which of the following is most acidic.
(a) Acetic acid (b) Chloro acetic acid
(c) Formic acid (d) Phenol
- (10) Which of the following is most basic.
(a) 2-nitro aniline (b) 2, 4-dinitro aniline
(c) 2, 4, 6-trinitro aniline (d) aniline



Q.2 Fill in the blanks

[08]

- (1) 1 dm. = (100 cm. / 10 cm.)
- (2) 2-chloro propanoic acid is optically (active / inactive)
- (3) alcohol does not oxidized. (Secondary / Tertiary)
- (4) The Reimer-Tiemann reaction of phenol gives.....
(Salicylic acid / Salicylaldehyde)
- (5) Glucose and Galactose both are (epimers / geometrical isomers)
- (6) Glucose reacts with HNO₃ to produce.....carboxylic acid. (mono / di)
- (7) Formic acid is acid as compare to acetic acid. (weak / strong)
- (8) The basicity of methyl amine is than aniline. (more / less)

Q.3 Answer the following (Attempt any Ten)

[20]

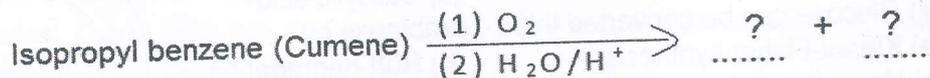
- (1) Define the terms: Enantiomers and Diastereomers.
- (2) Write down the factors affecting the stability of conformations.
- (3) Explain, Eclipsed conformer of ethane is less stable than staggered conformer.
- (4) Discuss the Kolbe reaction with example.
- (5) Give the synthesis of 1-phenyl ethanol from benzene.
- (6) Give the synthesis of 3-methyl-1-butene from methanol and iso butyl alcohol.
- (7) What are carbohydrates? How are they classified?
- (8) Explain Osazone formation.
- (9) Explain the reaction of glucose with H_2/Ni and HCN
- (10) Alcohol is neutral as compare to phenol? Why?
- (11) Give difference between Tautomerism & Resonance.
- (12) Why Acetamide is less basic than Ethyl amine.



Q.4 Answer the following (Attempt any Four)

[32]

- (1) What is Conformation? By using Newman formula, Draw various conformation of n-butane resulting from rotation about C_2-C_3 bond through 60° and explain their stability with potential energy diagram and arrange them in increasing order of stability.
- (2) Draw all possible Conformational isomers of Cyclohexane and explain their stability with potential energy diagram and arrange them in increasing order of stability.
- (3) Complete the following reaction and give appropriate detail mechanism of:



- (4) Write the detail stepwise mechanism of Gatterman synthesis.
- (5) Give the Synthesis of (+) Glucose from (-) Arabinose.
- (6) Prove that: (+) Lactose is a galactoside and not a glucoside.
- (7) Arrange the following in increasing order of their basicity: NH_3 , $(CH_3)_2NH$, $(CH_3)_3N$, CH_3NH_2 and Why?
- (8) Arrange the following in increasing order of their acidity: Picric acid, Phenol, 2- NO_2 Phenol, 2, 4-dinitro phenol and Why?