

(A-16)

SEAT No. \_\_\_\_\_

No. of printed pages: 02

**SARDAR PATEL UNIVERSITY**

M.Sc. (Integrated) Biotechnology, First Semester Examination

Tuesday, 1<sup>st</sup> May,

2018

2.00 p.m. to 5.00 p.m.

Organic Chemistry: PS01CIGB02

Total Marks : 70

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

- Q.1 Choose the correct option for the following :** [08]
- (i) Chemical formula for the methane gas is .....
- (a)  $C_2H_2$  (b)  $CH_4$  (c)  $C_6H_6$  (d) none.
- (ii) Homolysis of C-Cl bond produces .....
- (a) free radicals (b) carbonium ions  
(c) cation and anion (d) carbanions
- (iii) Cyclobutane shows ..... number of carbons.
- (a) 1 (b) 3 (c) 2 (d) 4.
- (iv) ..... having highest boiling point.
- (a) neopentane (b) isopentane (c) n-pentane (d) all.
- (v) Carbon is  $sp^3$  hybridized in .....
- (a)  $CH_2=CH_2$  (b)  $CH_4$  (c)  $C_2H_2$  (d)  $C_6H_6$ .
- (vi) General molecular formula of alkene is .....
- (a)  $C_nH_{2n}$  (b)  $C_nH_{2n+2}$  (c)  $C_nH_{2n-2}$  (d) none
- (vii) Aryl halide undergo ..... reaction.
- (a) electrophilic substitution (b) nucleophilic substitution  
(c) electrophilic addition (d) nucleophilic addition.
- (viii) Amines can be analyzed using ..... test.
- (a) Iodoform (b) Hinsberg (c) Bayer (d) none

- Q.2 Answer the following : (Attempt any seven)** [14]
- (i) Write the structural formula and IUPAC name for : Propane and Benzoic acid.
- (ii) Define carbocation and carbanion.
- (iii) Explain the structure of methane.
- (iv) Write Wurtz reaction and give its application.
- (v) Explain the structure of ethene.
- (vi) Write Markonikov's rule.
- (vii) Define the terms : (a) Optical activity (b) Isomer
- (viii) Explain the basic nature of pyridine.
- (ix) Write structure of benzaldehyde and salicylic acid.

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P.T.O.

Q.3

[A] Draw all the possible structural formula's for the given molecular formula : [06]  
 (i)  $C_4H_{10}$  (ii)  $C_5H_{12}$

[B] Define ylide. Write aldol condensation reaction and its mechanism. [06]

OR

[B] Draw the structure for : [06]

- (a) n-pentane (b) Sec. butyl chloride  
 (c) benzene (d) hex-2-ene

Q.4

[A] Explain the following : [06]  
 (i) As we go down in alkane series boiling point increase.  
 (ii) Discuss the structure of ethane.

[B] Distinguish between : Enantiomers and Diastereomers. [06]

OR

[B] Draw all possible Newmann's formula's of n-butane. [06]

Q.5

[A] Define diene. Give its classification and discuss stability of different dienes. [06]

[B] Draw the structure and assign E - Z nomenclature for the following : [06]  
 (i) 2-Chloro-2-butene (ii) 2-pentene.

OR

[B] Explain the following taking suitable example. [06]

- (i) Ozonolysis reaction of alkenes.  
 (ii) Oxymercuration-demercuration reaction of alkenes.

Q.6

[A] Draw all possible isomers for the compound having molecular formula [06]  
 $C_5H_{11}Cl$ .

[B] Write reaction mechanism for the alkaline hydrolysis of esters. [06]

OR

[B] Define heterocyclic compounds. Give molecular and structural formula's for [06]  
 the following heterocyclic compounds :

- (i) Thiophene (ii) Pyridine (iii) Pyrrole

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