

F.Y.B.SC. SEM – I (CBCS - 2016 Course) : SUMMER - 2019
SUBJECT: CHEMISTRY: ORGANIC & INORGANIC CHEMISTRY – I (C – 12)

Day : Friday
Date : 12/04/2019

Time : 11.00 A.M TO 02.00 PM
Max. Marks : 60

S-2019-0798

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

Q.1 A) Select the correct option and rewrite the sentence: **[06]**

- a) The resonance energy of benzene is _____ kcal/mole.
i) 36 ii) 61 iii) 72 iv) 84
- b) Clemmensen's reduction of ketone is carried out in the presence of _____.
i) H₂ / Pt iii) Zn – Hg / Conc. HCl
ii) H₂ / Raney Ni iv) LiAlH₄
- c) A free radical has _____.
i) Unpaired electrons ii) No electrons
ii) Paired electrons iv) Even number of electrons
- d) Which one of the following has the smallest atomic size?
i) Li ii) Na iii) K iv) Rb
- e) Alkaline earth metals are placed in _____ block of the periodic table.
i) s ii) p iii) d iv) f
- f) The s-block elements are placed at _____ side of the periodic table.
i) left ii) right iii) middle iv) bottom

B) Attempt the following: **[06]**

- a) Define Hyperconjugation effect.
- b) What are electrophiles?
- c) What are carbocations?
- d) Why is NaBH₄ known as selective reagent?
- e) What is hemolytic bond fission?
- f) State any two properties of organic compounds.

Q.2 Attempt **ANY THREE** of the following: **[12]**

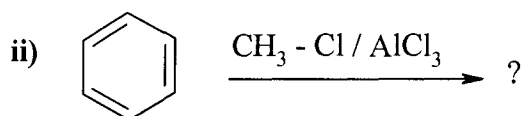
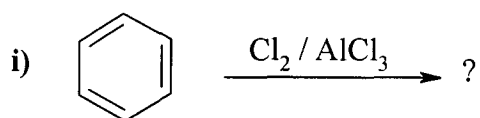
- a) What are carbanions? Discuss their generation and stability.
- b) What is nitration? Discuss the mechanism of nitration of benzene.
- c) What is inductive effect? Discuss it with suitable example. What are its important features?
- d) Write a note on : Aldol condensation.

P.T.O.

- Q.3** Attempt **ANY FOUR** of the following: [12]
- What is sulphonation? Discuss the mechanism of sulphonation of benzene.
 - Aniline is a much weaker base than cyclohexyl amine. Explain.
 - What is Wittig reaction? Discuss it with suitable example.
 - What is Wolff-Kishner reduction? Discuss it with suitable examples.
 - Write a note on : Types of organic reactions.

- Q.4 A)** Attempt **ANY ONE** of the following: [06]

- What are aldehydes and ketones? How will you carry out following conversions?
 - Formaldehyde to methyl alcohol and sodium formate.
 - Acetone to isopropyl alcohol.
- Predict the product/s and suggest the mechanism:



SECTION – II

- Q.4 B)** Attempt **ANY ONE** of the following: [06]

- Draw a rough sketch of periodic table and show the position of alkali and alkaline earth metals. Write the names and outer electronic configuration of alkali metals. Discuss the trends in atomic size, ionization potential and reactivity of these elements.
- Mention applications of compounds of s-block elements in industrial, biological and agricultural fields.

- Q.5** Attempt **ANY TWO** of the following: [12]

- Comment upon the 'special position' of hydrogen in the long form of the periodic table.
- Lithium shows diagonal relationship with magnesium. Explain.
- Answer the following:
 - Give examples of oxides, hydroxides and peroxides of s-block elements.
 - Write a short note on crown ethers.

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