

F.Y.B.SC. SEM – I (CBCS - 2016 COURSE) : WINTER - 2017

SUBJECT : CHEMISTRY: ORGANIC & INORGANIC CHEMISTRY – I (C – 12)

Day : Friday  
Date : 27/10/2017

W-2017-0541

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

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) Attempt all the following: [06]

- a) Cannizzaro's reaction is not given by \_\_\_\_\_.
  - i) Acetaldehyde
  - ii) Trimethylacetaldehyde
  - iii) Benzaldehyde
  - iv) Formaldehyde
- b) The resonance energy of benzene is \_\_\_\_\_.
  - i) 61 Kcal/mole
  - ii) 36 Kcal/mole
  - iii) 84 Kcal/mole
  - iv) 72 Kcal/mole
- c) The role of Conc  $H_2SO_4$  in nitration reaction is to produce ----.
  - i)  $NO_2^+$
  - ii)  $NO_2^-$
  - iii)  $NO_3^-$
  - iv)  $SO_4^{2-}$
- d) Alkaline earth metals are placed at \_\_\_\_\_ side of the periodic table.
  - i) left
  - ii) right
  - iii) middle
  - iv) bottom
- e) Ionization energy \_\_\_\_\_ down the group of alkali metals.
  - i) decreases
  - ii) increases
  - iii) remains constant
  - iv) varies randomly
- f) The s-block of the periodic table contains \_\_\_\_\_.
  - i) non-metals
  - ii) metals
  - iii) metalloids
  - iv) inert gases

B) Attempt all the following: [06]

- a) Why is  $NaBH_4$  is known as selective reagent?
- b) Define hyperconjugation effect.
- c) State any two conditions necessary for resonance.
- d) What are electrophiles?
- e) State any two properties of organic compounds.
- f) Define aromatic compounds.

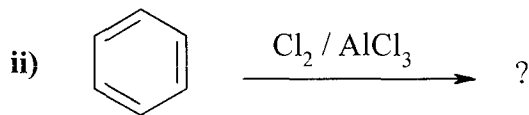
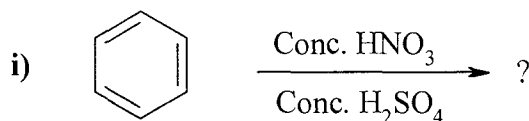
Q.2 Attempt ANY THREE of the following: [12]

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

P.T.O.

- Q.3** Attempt **ANY FOUR** of the following: [12]
- Aniline is a much more weaker base than cyclohexylamine. Explain.
  - Discuss the mechanism of Friedel – Craft acylation of benzene. What are its important features?
  - What is Wittig reaction? Discuss it with suitable examples.
  - What is Perkin’s reaction? Discuss it with suitable example.
  - Write a note on : Wolff-Kishner reduction.

- Q.4 A)** Attempt **ANY ONE** of the following: [06]
- What are aldehydes and ketones? How will you carry out following conversions?
    - Acetaldehyde to Isopropyl alcohol
    - Cyclohexanone to cyclohexanol
  - Predict the product/s and suggest the mechanism:



#### SECTION – II

- Q.4 B)** Attempt **ANY ONE** of the following: [06]
- What is anomalous behaviour? Discuss anomalous behaviour of lithium in the group of alkali metals.
  - Draw a rough sketch of periodic table and show the position of II A group elements. Write the names and electronic configuration of these elements. Discuss the trends in atomic size and ionization potential of these elements.

- Q.5** Attempt **ANY TWO** of the following: [12]
- Comment upon the ‘special position’ of hydrogen in the periodic table.
  - Mention important applications of compounds of s-block elements.
  - Answer the following:
    - Give examples of hydroxides, peroxides and oxides of alkali and alkaline earth metals.
    - Alkali metals show common oxidation state +1. Why?

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