BACHELOR OF SCIENCE (CBCS-2018 COURSE)
F. Y. B. Sc. Sem-I :SUMMER- 2022
SUBJECT : CHEMISTRY : ORGANIC & INORGANIC CHEMISTRY-I

Day : Saturday
Date : 9/7/2022

S-18296-2022

Time : 11:00 AM-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
[Organic Chemistry]

Q.1 Attempt **ANY TWO** of the following: **[12]**

a) What is alkylation? Discuss the mechanism of Friedel – Craft alkylation of benzene. What are its limitations?

b) What are aldehydes and ketones? How will you carry following conversions?
i) Cyclohexanone to methylene cyclohexane
ii) Acetaldehyde to Isopropyl alcohol

c) Write a note on : Resonance effect.

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

a) Explain the following:
i) Salicylic acid is a stronger acid than benzoic acid.
ii) Aniline is much more weaker base than cyclohexyl amine.

b) Predict the product/s and suggest the mechanism:

i)  $Br_2/AlBr_3 \rightarrow ?$

ii)  Conc. HNO_3 + Conc H_2SO_4 $\rightarrow ?$

c) Write a note on : Cannizzaro's reaction.

Q.3 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) Explain the terms: **i)** Homolysis **ii)** Heterolysis

d) Write a note on : Perkin's reaction.

P.T.O.

SECTION – II
[Inorganic Chemistry]

Q.4 Attempt **ANY TWO** of the following: **[12]**

a) State and explain Hund's rule of maximum multiplicity and Pauli's exclusion principle.

b) Write the names and outer electronic configuration of alkali metals. Comment upon the trends in atomic size, ionization potential, reactivity of these elements.

c) Mention important applications of s-block elements and their compounds in industrial, biological and agricultural fields.

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

a) The common oxidation state shown by alkaline earth metals is +2. Explain.

b) Write electronic configuration of :
i) K (At. No. 19) **ii)** Be (At. No. 4) **iii)** Mg (At. No. 12)

c) Write a short note on crown ethers.

d) Alkali metals are electropositive. Explain.

e) In Group IIA ionization potential decreases down the group. Explain.

f) Group IA and Group IIA elements are called s-block elements. Explain.

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