CHEMISTRY HSSC–II

15

SECTION – A (Marks 17)

Time allowed: 25 Minutes | **Version Number** | **4** | **0** | **9** | **1**

Note: **Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.**

Q. 1 **Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.**

1) Which of the following is **MOST** stable cation?
   A. Sn^{4+} B. Si^{4+} C. Ge^{4+} D. Pb^{4+}

2) With which wavelength is green colour associated?
   A. 500-580 B. 435-480 C. 580-595 D. Above 800

3) Stability order of simple alkyl carbocation is:
   A. methyl$>3^\circ>2^\circ>1^\circ$ B. $3^\circ>2^\circ>1^\circ>$methyl
   C. $3^\circ>$methyl$>2^\circ>1^\circ$ D. $3^\circ<2^\circ<1^\circ<$methyl

4) Which of the following is **NOT** a dehydrating agent?
   A. HNO_3 B. H_2SO_4 C. H_3PO_4 D. P_4O_{10}

5) In $C_2H_6SO_2^{2-}$ functional group is:
   A. Sulphone B. Thiol C. Sulphide D. Sulphoxide

6) Tartaric acid is obtained from:
   A. Vinegar B. Wine C. Grapes D. Sugar

7) Molecular formula of catechol is:
   A. $C_6H_5(OH)(NO_2)$ B. $C_6H_5(OH)_2$
   C. $C_6H_5(OH)(NO)$ D. $C_6H_5(NO_2)_2$

8) $[Ti(H_2O)_6]$ is of ___________ colour.
   A. Purple B. Green C. Yellow D. Blue

9) Composition of Brass is:
   A. Ni, Cr and Fe B. Cu and Sn C. Cu and Zn D. Zn and Sn

10) Which of the following is a simple protein?
    A. Peptones B. Histones C. Proteans D. Glycoproteins

11) Mordants are salts of:
    A. Aluminium B. Sodium C. Lithium D. Titanium

12) Miticides are used to control:
    A. Mice and bats B. Fungi
    C. Unwanted plants D. Ticks and mites

13) What is the value of BOD for clean water?
    A. 5 B. 3 C. 2 D. 1

14) Catalytic oxidation of benzene takes place in presence of ___________ as catalyst.
    A. Fe B. V_2O_5 C. Pt D. Ni

15) Which of the following is an acid catalysed reaction?
    A. Polymerization of aldehydes B. Halo form
    C. Condensation D. Addition of hydrogen cyanide

16) Malonic acid is a common name for:
    A. Ethanedioic acid B. Benezenedioic acid
    C. Propanedioic acid D. Butanoic acid

17) Which of the following will **NOT** give iodoform test?
    A. Acetone B. Acetaldehyde C. Ethanal D. 3-pentanone

CHEMISTRY HSSC–II

Time allowed: 2:35 Hours **Total Marks Sections B , C and D: 68**

NOTE: Sections B, C and D comprise pages 1 – 2. Answer any seven parts each from Section 'B' , 'C' and any two questions from Section 'D' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly.

SECTION – B (Marks 21)
Chapters 13, 14, 21 – 24

Q. 2 Answer any SEVEN parts. All part carry equal marks. **(7 x 3 = 21)**

(i) a. Why does Solubility of alkaline earth metal carbonates decrease down the group? Explain briefly.

b. Li_2CO_3 is unstable while other alkali metal carbonates are stable. Explain briefly.

(ii) Give three important examples of catalysts.

(iii) Explain primary, secondary and tertiary structure of proteins briefly.

(iv) a. Differentiate between RNA and DNA.

b. Name structural components of RNA and DNA.

(v) Write a short note on vat dyes.

(vi) Enlist different chemicals produced from ethylene.

(vii) What is smog? Discuss its types briefly.

(viii) Define spectroscopy. State its principle.

(ix) Discuss IR spectrum of propanone.

(x) a. Write systematic names of the following complexes:

(i) $[Ag(NH_3)_2]Cl$ (ii) $[CO(NH_3)_6]Cl_3$ (iii) $Na_2[NiCl_4]$

b. How Iron(II) ions react with:

(i) Ammonia solution (ii) Carbonate ion (iii) Thiocyanate ion

SECTION – C (Marks 21)
Chapters 15 – 20

Q. 3 Answer any SEVEN parts. All part carry equal marks. **(7 x 3 = 21)**

(i) What is functional group? Give its three examples

(ii) What is conjugation? Differentiate between isolated and conjugated system.

(iii) Define optical isomerism. Briefly explain with the example of tartaric acid.

(iv) What is a Diazonom Salt?

(v) What are elimination reactions?

(vi) Compare acidic strengths of Carboxylic acids and Phenols.

(vii) How can hydration of alkynes be done? What is usefulness of this reaction?

(viii) In what different ways hydrolysis of acid anhydrides can be done?

(ix) How can nitrogen be detected in an organic compound?

(x) How do ethers react with HI?

SECTION – D (Marks 26)

Note: Attempt any TWO questions. All questions carry equal marks. **(2 x 13 = 26)**

(Chapters 15 – 20)

Q. 4 a. Define aldol condensation. Write down its types alongwith mechanism. **(1+3+3)**

b. Compare the Substitution reaction with Elimination reaction. **(06)**

(Chapters 13, 14, 21 – 24)

Q. 5 a. What are adhesives? Discuss their working and types? **(1+3+3)**

b. Define chromatography and mass spectrometry? Discuss their mutual relationship in detail. **(2+4)**

(Chapters 15 – 20)

Q. 6 a. Draw and explain the structure of benzene according to molecular orbital theory. **(1+6)**

(Chapters 13,14, 21-24)

b. How do different factors affect the enzyme activity? **(2+2+2)**