

Sample

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HSSC-A-I-2026 (12th) P-4750+0=

Roll No
Student Must Fill the
Roll Number Bubbles

(Section-A) Marks= (18) Time Allowed: 20 Minutes

All questions of this section must be answered on this page and handed over to the Superintendent within given time.

991234



Student Name _____

Name of Paper CHEMISTRY (CH-II)

Paper Date 22-MAY-26

Paper Code 74

Signature of Student: _____

Paper Version

Sign and Seal of Suptd: _____

SEAL

19



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1	1	1	1	1	1
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6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

- The element of Group-IA which forms only normal oxide upon reaction with oxygen is: a) lithium, b) sodium, c) potassium, d) rubidium
- The general formula of nitrides of Group-IIA elements is: a) M_2N_3 , b) M_3N_2 , c) M_3N_4 , d) M_2N_4
- The nature of CCl_4 is: a) covalent, b) ionic, c) metallic, d) dative
- The oxidation state of iron in $[Fe(CN)_6]^{4-}$ is: a) +2, b) +3, c) +6, d) -3
- Functional group present in amines is: a) $-COOH$, b) $-OH$, c) $-NH_2$, d) $-CHO$
- Ethyl alcohol and dimethyl ether are a) positional isomers, b) tautomers, c) metamers, d) functional group isomers
- A substitution reaction initiated by nucleophile is called: a) free radical substitution reaction, b) electrophilic substitution reaction, c) nucleophilic substitution reaction, d) only substitution reaction
- The secondary alkyl halides follow S_N1 mechanism in presence of a) polar protic solvents, b) polar aprotic solvents, c) polar solvents, d) non-polar solvents
- The O-H bond length in alcohols is: a) 90 pm, b) 92 pm, c) 94 pm, d) 96 pm
- C-O bond and O-H bond in alcohols are polarized due to: a) lesser electronegativity of oxygen atom, b) greater electronegativity of oxygen atom, c) greater electronegativity of carbon atom, d) greater electronegativity of hydrogen atom
- The benzene-1, 2-dicarbaldehyde benzene-1, 3-dicarbaldehyde and benzene-1, 4-dicarbaldehyde are a) chain isomers, b) position isomers, c) functional group isomers, d) metamers
- The simplest carboxylic acid that can exhibit chain isomerism is: a) propanoic acid, b) butanoic acid, c) pentanoic acid, d) ethanoic acid
- At the optimum pH, enzyme show a) maximum activity, b) minimum activity, c) moderate activity, d) zero activity
- The lipid which plays a key role in the absorption and transportation of fatty acids in the body is: a) triglycerides, b) phospholipids, c) prostaglandins, d) cholesterol
- Another name of decanedioyl dichloride is: a) sebacoyl chloride, b) adipoyl chloride, c) suberoyl chloride, d) ethanoyl chloride
- Concentration of CO_2 in the atmosphere is: a) 0.93%, b) 0.36%, c) 0.036%, d) 0.02%
- The sulphuric acid aerosol formed from the oxidation of: a) carbon monoxide, b) carbon dioxide, c) sulphur dioxide, d) nitrogen dioxide
- The fragmentation pattern of a molecule gives an idea about the molecular: a) formula, b) mass, c) structure, d) composition

سوال نمبر کے مطابق درست جواب تحریر کرنا ضروری ہے۔

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If the Candidate is absent, The Superintendent Should fill this Circle
and pack the sheet with solved OMR sheets in roll number order

Time: 2 Hours 40 Minutes

SECTION-B

Marks: 40

NOTE: Attempt any ten of the following short questions. Each question carries 4 marks.

- Q.1 Explain the acid-base behaviour of period 3 oxides. How does it change across the period? Also mention the nature of these oxides.
- Q.2 Write down complete and balanced chemical reactions of the following with water. Also mention the nature of product formed in each case: (i) Dichlorine monoxide (ii) Phosphorus pentoxide (iii) Phosphorus trichloride (iv) Aluminium chloride
- Q.3 Define polarizing power and polarizability. Explain why lithium nitrate produces nitrogen dioxide gas, whereas other nitrates produce metal nitrites. Give reasons.
- Q.4 Define coal. Mention its composition. Mention its different forms. Also give its uses.
- Q.5 Write down the structures of the following: (i) 2-methylpropane (ii) 2, 2-dimethylpropane (iii) 1-ethyl-2-methylcyclopentane (iv) 1, 2-dimethylcyclopentane
- Q.6 Define polymerization. Explain how is ethene converted into polythene. Also mention reaction conditions.
- Q.7 Write down the reaction of methylmagnesium bromide with the following. Also write the name of product in each case: (i) methanal (ii) methyl formate (iii) propanone (iv) carbon dioxide
- Q.8 Prepare phenol from the following: (i) benzenesulphonic acid (ii) aniline
- Q.9 Prepare acetic acids from the following: (i) oxidation of alcohol (ii) ethanenitrile
- Q.10 Write down the structural formulas of the following: (i) glyceraldehyde (ii) glucose (cyclic form) (iii) dihydroxyacetone (iv) fructose (cyclic form)
- Q.11 Write any four principal fractions obtained during the fractional distillation of petroleum along with use of each.
- Q.12 Define equivalent and non-equivalent protons. Show these in methyl alcohol. How is signal intensity help in determining the structure of methyl alcohol?
- Q.13 Define spectroscopy and explain in three points why spectroscopic methods of analysis are superior to classical methods of analysis.

SECTION-C

Marks: 27

NOTE: Attempt any three of the following questions. Each question carries 9 marks.

- Q.14 i. What is reducing agent? Describe the reactions between iodide ions with sulphuric acid. Explain how does this reaction demonstrates the reducing nature of iodide ions.
ii. What is coordination number of a central metal ion? Give an example. Determine the coordination number of the central metal ion and expected geometry of the following coordination compounds:
(i) $[\text{Cu}(\text{NH}_3)_4(\text{H}_2\text{O})_2]^{2+}$ (ii) $[\text{Ag}(\text{NH}_3)_2]^+$
- Q.15 i. What are alkynes? Write down complete and balanced chemical equations for the following: (i) hydration of ethyne (ii) hydration of propyne (iii) hydrogenation of ethyne (iv) hydrogenation of propyne
ii. Differentiate between E1 and E2 mechanisms in the following terms: (i) nature of base (ii) nature of substrate (iii) nature of solvent (iv) kinetics
- Q.16 i. Define nitration. Explain the nitration of phenol with dilute and concentrated nitric acid, giving balanced chemical equations.
ii. Write down the following balanced chemical equations. Also name the products formed. (i) ethene (ii) ozonolysis of 2-methylbut-2-ene
- Q.17 i. Define atomic absorption spectrophotometry. Give its two uses. Describe the function of the hollow cathode lamp in atomic absorption spectrophotometry. How is a working (calibration) curve recorded?
ii. Define ozone and state its location in the atmosphere. Describe the mechanism of destruction of ozone in the stratosphere.