

## BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, PESHAWAR

Higher Secondary School Certificate (H.S.S.C.) Examination — Annual 2024

## CHEMISTRY

|                             |                                   |            |                 |
|-----------------------------|-----------------------------------|------------|-----------------|
| Class: 12th (Inter Part-II) | Paper ref: PR – XII (A-I-A2) (24) | Year: 2024 | Medium: English |
|-----------------------------|-----------------------------------|------------|-----------------|

Time: 20 Minutes

## SECTION - A

Marks: 18

Note: Four choices are given against each question; fill the circle of the correct answer only. Use a black or blue ball point / marker to fill the circle. Filling more than one circle for a question will be counted as a wrong answer.

- Which of the given acids is found in rancid butter?
 

☐  $C_2H_4O_2$ 
☐  $C_8H_6O_2$

☐  $C_4H_8O_2$ 
☐  $C_6H_{10}O_2$
- Which of the given is the strongest acid?
 

☐ Ethanol
 ☐ Acetic acid

☐ Chloroacetic acid
 ☐ Flouro acetic acid
- Steroids belong to the family of:
 

☐ Protein
 ☐ Lipid
 ☐ Enzyme
 ☐ Carbohydrates
- Which of the given is condensation polymer?
 

☐ PVC
 ☐ Polythene
 ☐ Nylon
 ☐ Rubber
- Photochemical smog is primarily caused by:
 

☐ CO
 ☐  $CO_2$ 
☐  $O_2$ 
☐  $NO_2$
- UV ranges from:
 

☐ 400-800 nm
 ☐ 800-1200 nm

☐ 1200-1611 nm
 ☐ 10-400 nm
- Which of the given halide is most reactive towards nucleophilic substitution reaction?
 

☐  $C_2H_5F$ 
☐  $C_2H_6Cl$

☐  $C_2H_5Br$ 
☐  $C_2H_5I$
- The end product of reaction of Grignard reagent with ethyl acetate is:
 

☐ Primary alcohol
 ☐ Secondary alcohol

☐ Tertiary alcohol
 ☐ None of these
- Oxidation of secondary alcohols gives;
 

☐ Carboxylic acid
 ☐ Ether

☐ Aldehyde
 ☐ Ketone
- Phenol containing 5% of water is known as:
 

☐ Carbolic acid
 ☐ Picric acid

☐ Ethanoic acid
 ☐ Methanoic acid
- The carbon of the carbonyl group is:
 

☐  $Sp^3$ -hybridized
 ☐  $Sp^2$ -hybridized

☐  $Sp$ -hybridized
 ☐ Un-hybridized
- Which of the given compounds can react with ammonical silver nitrate solution to form silver mirror:
 

☐ Acetone
 ☐ Ethanol
 ☐ Ether
 ☐ Ethanal
- Which of the given metal sulphates is almost insoluble in water?
 

☐  $Na_2SO_4$ 
☐  $K_2SO_4$

☐  $CaSO_4$ 
☐  $BaSO_4$
- The coordination number of iron in  $[Fe(CN)_6]^{-4}$  is:
 

☐ 2
 ☐ 3
 ☐ 4
 ☐ 6
- Pyridine belongs to which class of organic compounds?
 

☐ Heterocyclic
 ☐ Homocyclic

☐ Alicyclic
 ☐ Acyclic
- Which of the given represents the functional group of amides:
 

☐ -COOR
 ☐  $-NH_2$

☐ -CONH<sub>2</sub>
☐  $-C\equiv N$
- Which one of the given compounds exhibit geometric isomerism?
 

☐ 1-butane
 ☐ 2-butane

☐ 2-butyne
 ☐ 2-Methyl propane
- Which one of the given is O/P direction but deactivates benzene ring?
 

☐ -Cl
 ☐  $-NH_2$ 
☐ -OH
 ☐  $-OCH_3$

## SECTION - B

Note: Time allowed for Section-B and Section-C is 2 Hours and 40 minutes.

**Q2: Answer any TEN parts. Each part carries FOUR marks.**

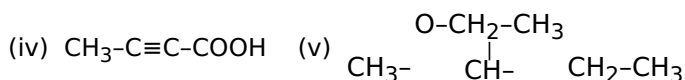
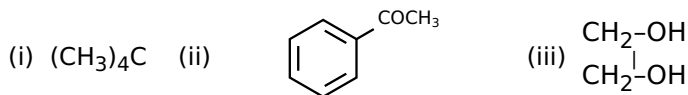
- How Beryllium differs from the other members of its own group?
- Explain the catalytic behavior of transition elements?
- Differentiate between partial and total synthesis?
- Describe any two methods of preparation of alkynes?
- What is meant by chirality? Give an example.

6. Why tertiary carbocation is more stable than secondary and primary carbocation?
7. What is Lucas Test?
8. Explain briefly which tests can be used for identification of aldehydes from ketones in laboratory?
9. Why chloro acetic acid is stronger acid than acetic acid?
10. Differentiate between DNA and RNA.
11. What are the uses of PVC and Nylon?
12. Why is acid rain considered as a threat to historical monuments?
13. Why modern method of analysis is superior over classical methods of analysis?

### SECTION - C

Note: Attempt any THREE questions. All questions carry equal marks.

Q3: (a) Give IUPAC names to the following structures.



(b) What is meant by inert pair effect? Explain inert pair effect in formation of ionic and covalent bond.

Q4: (a) Starting from alkene how would you prepare the following compounds?

(i) Vicinal dihalide    (ii) Alcohol    (iii) Aldehyde    (iv) Epoxide

(b) Discuss the mechanism for  $\text{S}_\text{N}1$  and  $\text{S}_\text{N}2$  reactions.

Q5: (a) Write the four different methods of preparation of Phenols.

(b) Define enzymes. Describe the role of enzymes in digestion of carbohydrates and proteins.

Q6: (a) What is greenhouse effect? How is it causing global warming?

(b) Explain the construction and working of mass spectrometry?

#### Notes on this transcription

- This is a **typeset transcription** of the original paper, not a photograph of it. Question wording, spelling, punctuation and numbering are reproduced exactly as printed, including the board's own errors.
- **No answer key is included.** On the source sheet the correct circles are already shaded in; every option here is reproduced unmarked so the paper can be attempted.
- Peshawar Board papers carry no group label, so this paper is filed without one.
- The objective-section instructions are printed in Urdu on the original sheet; an English rendering of them is given above.
- Structures drawn on the original are redrawn here: benzene rings as ring diagrams with the same substitution pattern, and branched chains in the two-level form the board prints.
- **Q.1, second option:** the formula sits under the source watermark and reads as  $\text{C}_8\text{H}_6\text{O}_2$ ; a cleaner scan would confirm it.
- Board spellings and slips kept verbatim: "Flouro acetic acid" (Q.2),  $\text{C}_2\text{H}_6\text{Cl}$  (Q.7),  $\text{K}_2\text{SO}_4$  (Q.13), "represeots" (Q.16), "1-butane / 2-butane" (Q.17), "O/P direction" (Q.18), "odern methjod" (Section-B 13), "mechanism to  $\text{S}_\text{N}1$ " (Q4 b), "spectrometry" (Q6 b) and "All questions carries equal marks".
- Neither written section prints per-question mark figures beyond the FOUR marks stated in the Q2 rubric, so the marks column is left empty.