

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, PESHAWAR

Higher Secondary School Certificate (H.S.S.C.) Examination — 2021 (Fresh / Reappear)

CHEMISTRY

Class: 12th (Inter Part-II)	Paper ref: PR – XII (A-02) (21)	Year: 2021	Medium: English
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Time Allowed: 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.

- Aldehydes or ketones are reduced to alkanes in the presence of basic medium by _____.
☐ Clemenson reduction ☐ Wolf-Kishner reduction
☐ Dow process ☐ Williamson's synthesis
- Which one of the given compounds will show Silver Mirror Test.
☐ Ethanal ☐ Ethanol ☐ Ether ☐ Acetone
- The more acidic compound among the given is _____.
☐ C₆H₅OH ☐ C₂H₅OH
☐ H₂CO₃ ☐ CH₃COOH
- The dehydrating agent which is used in preparation of acetic anhydride from acetic acid at high temperature is _____.
☐ P₂O₅ ☐ H₂SO₄
☐ Al₂O₃ ☐ H₃PO₄
- Which one of the given is not a disaccharide?
☐ Sucrose ☐ Maltose ☐ Galactose ☐ Lactose
- The hydrolysis of trilycerides by alkalies is called _____.
☐ Saponification ☐ Esterification
☐ Dehydration ☐ Trans-esterification
- Nylon (6,6) is the polymer of hexamethylene diamine and _____.
☐ Acetic acid ☐ Picric acid ☐ Adipic acid ☐ Glycol
- The temperature range of troposphere is _____.
☐ -2°C to -92°C ☐ 56°C to -2°C
☐ -92°C to 1200°C ☐ 15°C to -56°C
- The spectroscopic technique which is used for determination of functional group in a compound is _____.
☐ IR spectroscopy ☐ NMR
☐ UV spectroscopy ☐ Mass spectroscopy
- Those elements of group IVA which have no tendency to form a dichloride arc _____.
☐ C and Si ☐ P and Si ☐ Ga and C ☐ Sn and Si
- The oxidation number of cobalt in [Co(NH₃)₄Cl₂]Cl is _____.
☐ 1 ☐ 2 ☐ 3 ☐ 4
- The catalyst used for the conversion of SO₂ to SO₃ in the manufacture of H₂SO₄ by contact process is _____.
☐ TiCl₄ ☐ V₂O₅
☐ Ni ☐ Fe
- Aromatic compounds are obtained upon fractional distillation of _____.
☐ Coke ☐ Coal gas ☐ Ammonical liquor ☐ Coal tar
- The electrophile in the aromatic sulphonation reaction of benzene is _____.
☐ H₂SO₄ ☐ SO₂
☐ SO₃ ☐ H₃⁺O
- A special type of functional group isomerism in which the isomers are in dynamic equilibrium with each other is called _____.
☐ Metamerism ☐ Tautomerism
☐ Geometric isomerism ☐ Configurational isomerism
- A two step mechanism in which a carbocation is formed in first step and in second step an unsaturated compound is formed is _____ mechanism.
☐ SN¹ ☐ SN² ☐ E¹ ☐ E²
- Grignard's reagent react with acetaldehyde to form addition products which upon acid hydrolysis yield _____.
☐ Primary alcohol ☐ Secondary alcohol
☐ Tertiary alcohol ☐ Glycol
- Picric acid is derivative of _____.
☐ Benzene ☐ Benzoic acid ☐ Perchloric acid ☐ Phenol

SECTION - B

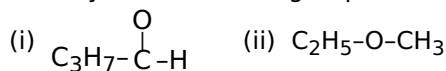
Marks: 40

Note: Time allowed for Section-B and Section-C is 2 Hours and 40 minutes. [CHEMISTRY (New) — Inter Part-II (Fresh/Reappear)]

Q-II Answer any TEN parts. Each part carries FOUR marks.

- Carbon and Silicon both belong to group IVA, but CO₂ and SiO₂ differ in their structures, comment over it.
- Define the paramagnetic and diamagnetic substances. What feature of electronic structure is related to their behaviour?

3. Identify the functional group of following compounds.



4. How are alkenes prepared from: (i) Alcohols (ii) Alkyl halides

5. Illustrate the reason that ortho/para directing substituents activate the benzene ring while meta directing substituents deactivate the benzene ring for further substitution reactions.

6. Compare $\text{S}_{\text{N}}1$ mechanism with $\text{E}1$ mechanism.

7. What is Lucas reagent? How are different types of monohydric alcohols distinguished by using this reagent?

8. Give the conversion of aldehydes and ketones in to alkanes by Clemenson reduction and Wolf-Kishner reduction.

9. Why methanoic acid is stronger than ethanoic acid and chloro acetic acid is stronger than acetic acid?

10. Describe briefly the secondary and tertiary structures of protein.

11. Enlist four fractions that are obtained by fractional distillation of petroleum. Also give their uses.

12. Write down the harmful effects of acid rain.

13. Why are the modern methods of analysis superior over classical methods of analysis?

SECTION - C

Marks: 27

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

Q-III (a) Define polymers. How are they classified? Explain each type by giving examples. (05)

(b) Describe the mechanism of free radical substitution reaction in halogenation of alkanes. (04)

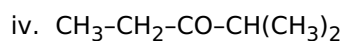
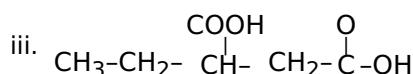
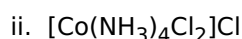
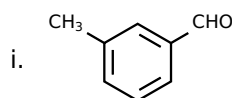
Q-IV (a) What is the principle of UV/Vis spectroscopy? Discuss the electronic transitions that are associated with the absorption of UV/Vis radiations. (05)

(b) Beryllium differs from other members of its group. Give any four points of differences. (04)

Q-V (a) Give industrial applications of enzymes. (05)

(b) Write note on: (i) Tollen's test (ii) Williamson's synthesis (04)

Q-VI (a) Write the names of following compounds according to IUPAC system. (05)



(b) How will you convert: (04)

(i) Acetic acid in to ethyl acetate.

(ii) Formaldehyde in to primary alcohol by using Grignard's reagent and H_2O .

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.
- The objective half is the board's printed answer sheet (booklet P-467); the candidate name and roll number fields on it are blank and have been left out.
- Board spellings kept verbatim: "Clemenson reduction" (Q.1 and Section-B 8), "trilycerides" and "Sponification" (Q.6), "dichloride arc" for "are" (Q.10), "Ammonical liquor" (Q.13) and "substitutents" (Section-B 5).
- Q.8 options sit partly under the source watermark; they read as shown.