

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, PESHAWAR

Higher Secondary School Certificate (H.S.S.C.) Examination — 2020 (Reappear / Supplementary)

CHEMISTRY

Class: 12th (Inter Part-II)	Paper ref: PR - XII (SE) (20)	Year: 2020	Medium: English
-----------------------------	-------------------------------	------------	-----------------

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.

- The most reactive alkyl halide is:
☐ R-Cl ☐ R-Br ☐ R-I ☐ R-F
- Lucas reagent is a solution of:
☐ HCl and ZnBr₂ ☐ H₂SO₄ and ZnCl₂
☐ HCl and ZnCl₂ ☐ HCl and HNO₃
- Predict the product: $\text{RCH}_2\text{OH} + [\text{O}] \xrightarrow{\text{K}_2\text{Cr}_2\text{O}_7 / \text{H}_2\text{SO}_4} ? + \text{H}_2\text{O}$
☐ R₂-COOH ☐ R-CHO
☐ R-OH ☐ R-CO-OR
- The strongest acid is:
☐ Propanoic acid ☐ Ethanoic acid
☐ Methanoic acid ☐ Trichloro acetic acid
- Nylon (6,6) is an example of:
☐ Addition polymer ☐ Condensed polymer
☐ Both A & B ☐ None of these
- The important chemical specie that exist in stratosphere is:
☐ NO₂ ☐ CO ☐ SO₃ ☐ Ozone
- Upon the acid hydrolysis of epoxides produce _____.
☐ Ethylene ozonide ☐ Formaldehyde
☐ Glycerol ☐ Glycol
- Which of the given is not a heterocyclic compound?
☐ Thiophene ☐ Pyrole ☐ Pyridine ☐ Naphthalene
- In cyclopropane, the deviation from the normal tetrahedral angle of 109.5° to 60° is called:
☐ Angle strain ☐ Angle stress ☐ Angle repulsion ☐ All these
- The least stable of the given butenes is:
☐ Isobutylene ☐ Trans-2-butene ☐ Cis-2-butene ☐ 1-butene
- Optical activity of a compound is measured by an instrument called:
☐ Refractometer ☐ Viscometer ☐ Polarimeter ☐ Monometer
- Bromine attached to benzene ring is:
☐ O/P directing and activating ☐ O/P directing and de-activating
☐ m-directing and activating ☐ Para directing only
- Which of the given is Amphoteric oxide?
☐ Na₂O ☐ MgO
☐ Al₂O₃ ☐ SiO₂
- Which of the given carbonates decomposes on heating?
☐ Li₂CO₃ ☐ Na₂CO₃
☐ K₂CO₃ ☐ None of these
- The inert pair effect dominates in:
☐ C ☐ Si ☐ Sn ☐ Pb
- The number of unpaired electrons in scandium ion, (Sc⁺³ ion) are:
☐ Three ☐ Two ☐ One ☐ Zero
- The complex ions having coordination number 6 have shape _____.
☐ Trigonal bipyramidal ☐ Square planer
☐ Octahedral ☐ Tetrahedral
- Highest rank coal having above 91.5% of carbon is:
☐ Wood ☐ Lignite ☐ Peat ☐ Anthracite

SECTION - B

Marks: 40

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

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

- Why the compounds of Sn⁺⁴ are covalent in nature, while those of Sn⁺² are ionic? Give reason.
- Write at least four general features of transition elements.
- Name the following according to IUPAC.
 (a) [Cr(NH₃)₆](NO₃)₃ (b) [Co(en)₂Cl₂]
- Write a note on "Bucky Ball".
- Define Markovnikov's Rule. Apply this rule to the addition of HBr to 1-pentene.

- Briefly discuss the ortho/para directing effect in term of charge distribution and stability of arenium ion by taking example of phenol.
- How grignard Reagent react with:
(a) Ethyl acetate (b) Carbondioxide
- Why phenole is acidic in nature? Give reason. Just arrange phenol, water, carboxylic acids and alcohols in increasing order of acid strength.
- Write a brief note on reactivity of carbonyl group.
- How are carboxylic acid prepared by:
(a) Hydrolysis of nitriles (b) Oxidation of Alcohol
- What are petrochemicals? Give examples.
- Write at least four goals of Green Chemistry.
- Define chemical shift. Give examples.

SECTION - C

Marks: 27

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

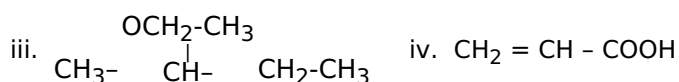
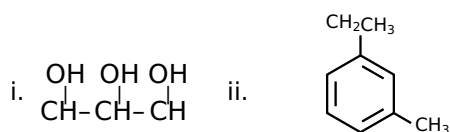
Q-III (a) What are complex ions? Explain their shapes.

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

Q-IV (a) Write the 3-steps general mechanism for electrophilic aromatic substitution reaction of benzene.

(b) How SN₁ and E-1 reactions can be differentiated by taking into account their mechanisms?

Q-V (a) Give IUPAC names.



(b) Draw structures of the following:

i. Naphthalene ii. 3-Hexene-1-yne iii. Cumene iv. Cresol v. Picric acid

Q-VI (a) What is photochemical smog? Explain the photochemical reactions involved to show the formation of peroxy acetylnitrate (PAN).

(b) Write a note on geometric isomerism with examples.

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; the candidate name and roll number fields on it are blank and have been left out.
- Q.7 (third option)** and **Q.15 (third option)** sit under the source watermark; they read as Glycerol and Sn respectively.
- Board spellings kept verbatim: "Condensed polymer" (Q.5), "Pyrole" (Q.8), "Square planer" (Q.17), "grignard Reagent" and "Carbondioxide" (Section-B 7), "phenole" and "Just arrange" (Section-B 8), and "differentiated" (Q-IV b). Section-C labels print clipped on the source as -III to -VI and are set here in full.