

HSC Maharashtra Board question paper: March 2013

Note:

- All questions are compulsory
- Answer to the two sections are to be written in the same answer book.
- Figure to the right hand side indicate full marks.
- Write balanced chemical equations and draw neat and labelled diagrams wherever necessary.
- Every new question must be started on a new page.
- Use of logarithmic table is allowed.

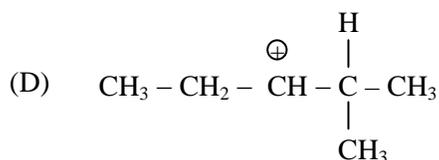
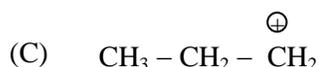
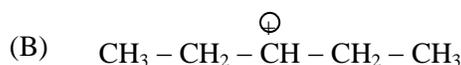
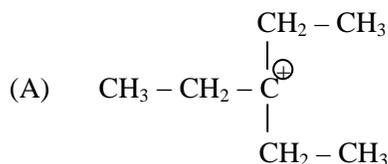
CHEMISTRY: SECTION – II

Q. 5. Select and write the most appropriate answer from the given alternatives for each sub-question: [7]

- In which pair highest oxidation states of transition metals are found:

(A) nitriles and chlorides	(B) fluorides and chlorides
(C) fluorides and oxides	(D) nitriles and oxides

- Which of the following carbocations is least stable?



- Compound having general formula $\begin{array}{c} \text{R} \quad \text{OR} \\ \diagdown \quad / \\ \text{C} \\ / \quad \diagdown \\ \text{H} \quad \text{OR} \end{array}$ is called

(A) diester	(B) acid anhydride
(C) hemiacetal	(D) acetal

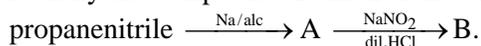
- The complex ion $[\text{Co}(\text{H}_2\text{O})_5(\text{ONO})]^{2+}$ and $[\text{Co}(\text{H}_2\text{O})_5\text{NO}_2]^{2+}$ are called:

(A) linkage isomer	(B) ionisation isomer
(C) co-ordination isomer	(D) geometrical isomer

- Inflammation of tongue is due to the deficiency of:

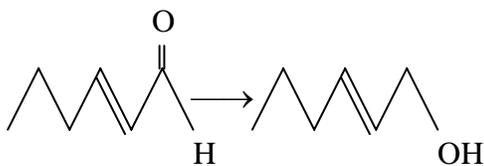
(A) Vitamin B ₁	(B) Vitamin B ₂	(C) Vitamin B ₅	(D) Vitamin B ₆
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- Identify the compound 'B' in the following series of reaction:



- (A) n-propyl chloride (B) Propanamine (C) n-propyl alcohol (D) Isopropyl alcohol

vii. Which of the following reagents is best for the following conversion?



- (A) LiAlH_4 (B) H_3O^+
 (C) H_2/Ni , 453 K (D) $\text{Zn} - \text{Hg} + \text{HCl}_{(\text{con})}$

Q6. Answer any SIX of the following :

[12]

- i. Calculate magnetic moment of $\text{Fe}_{(\text{aq})}^{2+}$ ion ($Z = 26$).
- ii. How is ethanol prepared from methanal by using Grignard reagent?
- iii. Write the chemical reaction to prepare novolac polymer.
- iv. Why does p-nitrochlorobenzene undergo displacement reactions readily with attack of nucleophilic HO^- ion?
- v. What is the action of bromine in alkaline medium on
 - i. $\text{CH}_3\text{CH}_2\text{NO}_2$
 - ii. $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{NO}_2$
- vi. Define antioxidants and mention two examples.
- vii. How is 4-methylpent-3-en-2-one obtained from propan-2-one?
- viii. What are hormones? Write the structure of simple triglycerides.

Q7. Answer any THREE of the following:

[9]

- i. Write the different oxidation states of manganese. Why + 2 oxidation state of manganese is more stable?
- ii. How are the following compounds prepared?
 - a. benzaldehyde from benzene
 - b. acetophenone from benzene
 - c. benzaldehyde from benzoyl chloride
- iii. Define complex lipids and write the structures of nucleotide and nucleoside.
- iv. Write the formulae of the following compounds
 - a. Sodium hexanitrito- N - cobaltate (III)
 - b. Tetraaquodichlorochromium (III) chloride
 - c. Potassium tetracyanoaurate (III) ion

Q8. Answer any ONE of the following:

[7]

- i. a. Explain the following terms:
 1. Homopolymers
 2. Elastomers
- b. Explain the mechanism of cleansing action of soaps.
- c. Write balanced chemical equations for the action of
 1. phosphorous trichloride on propan-2-ol
 2. hydrogen bromide on styrene in the presence of a peroxide
 3. methyl bromide on silver propanoate
- ii. a. Write a short note on Hoffmann bromamide degradation.
- b. Explain the mechanism of action of hydroiodic acid on 3-methylbutan-2-ol.
- c. Mention 'two' uses of propan-2-one.