























74.25 m<sup>3</sup>  
 $\sqrt{r^2 + h^2} = \sqrt{\frac{81}{4}}$   
 $\frac{9}{2} \quad \frac{\sqrt{130}}{2}$

# Exam Mate

$$\pi(n) = \sum_{m=2}^n \left( \sum_{k=1}^m \right)$$

$$A = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \\ \vdots & \vdots \\ a_{m1} & a_{m2} \end{pmatrix}$$

$$\alpha = f(z)$$

$$\beta = f(z^2)$$



Mock Test Paper for Std X, XII CBSE Board, IIT - JEE Main &amp; Advanced.

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## MOCK TEST PAPER # 1

### CLASS-XII (CHEMISTRY)

**Time Allowed : 3 hours****Maximum Marks: 70****GENERAL INSTRUCTIONS**

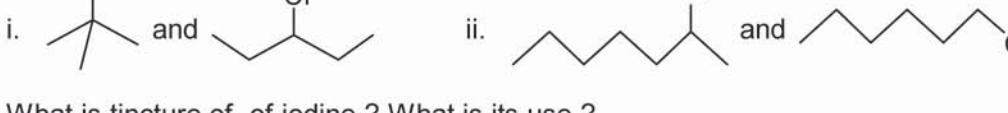
- All questions are compulsory
- Q. No. 1 to 5 are very short answer questions and carry 1 mark each.
- Q. No. 6 to 12 are short answer questions and carry 2 marks each.
- Q. No. 13 to 24 are also short answer questions and carry 3 marks each.
- Q. No. 25 to 27 are long answer questions and carry 5 marks each.
- Use log tables if necessary, use of calculators is not allowed.

- What is activation energy ?
- Write the name of enzyme, which converts starch into maltose.
- Give an example of compounds in which nitrogen exhibits oxidation states of -3 and +3
- Name the reagents used in the following reactions:
  - Oxidation of primary alcohol to carboxylic acid.
  - Benzyl alcohol to benzoic acid.
- Name one disease caused by the deficiency of
  - Vitamin E
  - Vitamin D
- Which of the following compounds has a lone pair of electrons at the central atom ?
  $H_2S_2O_3, H_2S_2O_7, H_2SO_3, H_2SO_4$
- Give an example of Hell-Volhard-Zelinsky reaction.
- Draw the structure of optical isomers of  $[Cr(C_2O_4)_3]^{3-}$ .
- Define the following terms with suitable examples.
  - Primitive unit cell
  - Ferromagnetism.

**OR**

Write any two differences between n-type and p-type semiconductors.

- In the following pairs of halogen compounds, which compound undergoes faster  $S_N1$  reaction ?



- What is tincture of iodine ? What is its use ?
- What are artificial sweetening agents ? Give two example.
- For the complex  $[Fe(en)_2Cl_2]Cl$ , identify the following
  - Type of hybridization and geometry.
  - IUPAC name of the complex.
- An element with molar mass  $2.7 \times 10^{-2}$  kg mol<sup>-1</sup> forms a cubic unit cell edge length 405 pm. If its density is  $2.7 \times 10^3$  kg m<sup>-3</sup> then what is the nature of the cubic unit cell ?
- Write the structure and IUPAC name of DDT.
- The following initial rate data were obtained at 300 K for the reaction  $2P + Q \rightarrow R + S$ .

	[P] mol L <sup>-1</sup>	[Q] mol L <sup>-1</sup>	Rate/mol L <sup>-1</sup> s <sup>-1</sup>
I.	0.2	0.1	$6.0 \times 10^{-2}$
II.	0.4	0.1	$2.4 \times 10^{-1}$
III.	0.2	0.2	$1.2 \times 10^{-1}$

- Deduce the rate law.
- If the half-life of a reaction is inversely proportional to initial concentration of the reactant then what is the order of reaction ?
- Write the chemical reactions of the following:
  - Coupling reaction.
  - Hoffmann bromamide reaction.
- Explain the following terms:
  - Micelles
  - Dialysis
  - Hardy-Schulze rule.

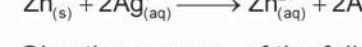
**OR**

Explain the following observations:

- A beam of light passing through a colloidal solution is visible.
- Passing an electric current through a colloidal solution removes colloidal particles from it.
- Ferric hydroxide solution coagulates on addition of a solution of potassium sulphate.
- Complete the following chemical reactions:
  - $F_2 + H_2O \rightarrow$
  - $Ca_3P_2 + H_2O \rightarrow$
  - $XeF_4 + H_2O \rightarrow$

- What is the role of depressant in the froth floatation process ?
- Out of C and CO which is a better reducing agent for FeO ?
- In the lower part of blast furnace (higher temperature)
- In the upper part of blast furnace (lower temperature).

- The reaction occurs in galvanic cells is:



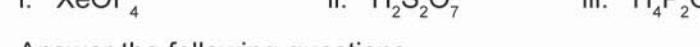
Give the answers of the following:

- Which of the electrode is negatively charged ?
- The carriers of the current in the cell.
- Individual reaction at each electrode.

- How are the following conversions carried out ?

- Propene → Propan-2-ol.
- Benzyl chloride → benzyl alcohol
- Ethyl magnesium chloride → propan-1-ol.

- Draw the structure of the following species:



- Answer the following questions.

- What are biodegradable polymer ?
- Identify the aliphatic biodegradable polyester which is used in packaging and orthopaedic devices. Write its full form.
- Write the name and structure of the monomer of nylon 6.

- a. Define (i) Mole fraction (ii) Molality

How are these two related ?

- What is the value of van't Hoff factor for a solute which undergo dimerisation upto 40%?

**OR**

- State the following

- Henry's law about partial pressure of a gas in a mixture.
- Raoult's law in its general form in reference to solutions.
- A solution prepared by dissolving 8.95 mg of a gene fragment in 35.0 mL of water has an osmotic pressure of 0.335 torr at 25°C. Assuming the gene fragment is a non-electrolyte, determine its molar mass.

- Write chemical equations for the following reactions:

- Oxidation of nitrite ion by  $MnO_4^-$  in acidic medium.
- Acidification of potassium chromate solution.
- Disproportionation of manganese (VI) in acidic solution.

- Explain the following observations.

- Transition elements generally form coloured compounds.
- Zinc is not regarded as a transition element.

**OR**

- Account for the following

- Europium (II) is more stable than cerium (II)
- Transition metals have high enthalpies of atomization.
- Write the steps involved in the preparation of
  - $K_2Cr_2O_7$  from  $Na_2CrO_4$
  - $KMnO_4$  from  $K_2MnO_4$

- A compound P on oxidation gives  $Q(C_2H_4O_2)$ . P reacts with dil. NaOH and on subsequent heating forms R. R on catalytic hydrogenation gives S. Identify P, Q, R, S and write down the reaction involved.

- Write chemical equations to carry out the following conversions.

- Benzene to benzyl alcohol.
- Propane nitrile to 1-phenyl propanone.

**OR**

- Two moles of organic compound 'W' on treatment with a strong base give two compounds 'X' and 'Y'. Compound 'X' on dehydrogenation of 'Y' yields carboxylic acid 'Z' having molecular formula of  $CH_2O_2$ .

- Explain why:

- The aldol and ketol readily lose water molecules to give,  $\alpha, \beta$ -unsaturated carbonyl compounds?
- Benzaldehyde is less reactive than acetaldehyde towards nucleophilic substitution reaction ?

For Answers visit: [www.dharitri.com](http://www.dharitri.com)









