



# CHEMISTRY

## BOOKS - ARIHANT PUBLICATION

### SAMPLE PAPER 5

**Group A Choose And Write The Correct Answer**

1. Vinegar is an aqueous solution of

A. acetic acid

B. formic acid

C. vitamin E

D. ethanol

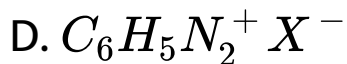
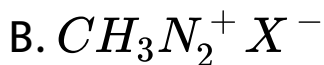
**Answer: A**



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2. Which of the following is the most stable diazonium salt?





**Answer: D**



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**3.** Which of the following polysaccharide is stored in the cell wall ?

A. Cellulose

B. Amylose

C. Amylopectin

D. Glycogen

**Answer: A**



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4. For Freundlich isotherm a graph of  $\log x / m$  is plotted against  $\log p$ . The slope of the line and its y-axis intercept respectively corresponds to

A.  $\frac{1}{n}, k$

B.  $\log \frac{1}{n}, k$

C.  $\frac{1}{n}, \log k$

D.  $\log \frac{1}{n}, \log k$

**Answer: C**



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5.  $(n - 1)d^{10}ns^2$  is electronic configuration of

.....

A. Zn

B. Cd

C. Hg

D. All of these

**Answer: D**

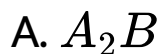


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**6.** A solid is made up of two elements A and B.

Atoms B are in ccp arrangement while atoms A

occupy all the tetrahedral sites, Predict the formula of the compound:



**Answer: A**



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7. For which order reaction, the unit of rate constant is time inverse?

- A. Zero order
- B. First order
- C. Second order
- D. Third order

**Answer: B**



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8. The axial angles in ..... crystal system are

$$\alpha \neq \beta \neq \gamma \neq 90^\circ.$$



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9. In the preparation of compounds of Xe,

Bartlett had taken ..... as a base compound.



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10. During a chemical reaction with ..... in

time, rate of a reaction decreases.



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11. What do you mean by colligative properties?



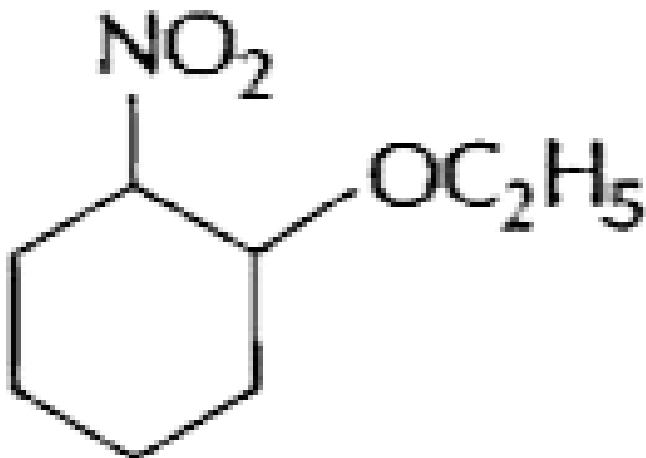
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12. Give an example of coordination isomerism.



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13. Write the IUPAC name of the following compound.



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14. Write the structure of 2-hydroxybenzoic acid.



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## Group B

1. What is meant by denaturation of proteins?



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2. Explain why propanol has higher boiling point than that of butane ?



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3. What is the percentage efficiency of packing in case of simple cubic lattice and body centred cubic lattice ?



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4. Why is geometrical isomersim not possible for tetrahedral complexes?



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5. Write the principal ores of zinc metal.

Mention their composition too.



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6. Write any two uses of sulphuric acid.



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7. What is the density of 3.60 M sulphuric acid, which is 29%  $H_2SO_4$  by mass?



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8. Define the following terms :

(a) Rate of reaction

(b) Half-life period ( $t_{1/2}$ ) of reaction.



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9. Give reason why: alkyl aryl ethers are less reactive than phenols towards electrophilic substitution reactions.



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10. Why does tranquilizers are called neurologically active drugs?



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11. What is a biodegradable polymer? Give an example of a biodegradable aliphatic polymers.



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12. An element crystallises in a bcc lattice with cell edge of 500 pm. The density of the element is  $7.5 \text{ gm}^{-3}$ . How many atoms are present in 300 g of the element ?



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13. Although chlorine is an electron withdrawing group, yet is ortho directing in electrophilic aromatic substitution reaction. Explain.



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14. What is essentially difference between  $\alpha$ -glucose and  $\beta$ - glucose? What is meant by pyranose structure of glucose?



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15. Explain the bonding in coordination compounds in terms of Werner's postulates.



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**16.** Explain the following terms:

Electrophoresis



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**17.** Explain the following terms:

Tyndall effect



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**18.** Explain the following terms:

Coagulation



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**19.** How can the following conversions be carried out?

But-1-ene to n-butyliodide



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**20.** How can the following conversion be carried out?

Propene to propan-1-ol



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**21.** Explain the following reactions :

Grabiell phthalamide reaction



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22. Explain the following reactions :

Coupling reaction



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23. Write balance chemical equations of two reactions in which  $KMnO_4$  acts as an oxidising agent in the acidic medium.



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24. What is meant by positive deviation from Raoult's law? Given an example.



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Group C

1. The chemistry of corrosion of iron is essentially an electrochemical phenomenon. Explain the reactions occurring during the corrosion of iron in the atmosphere. Suggest

two materials other than hydrogen that can be used as fuels in fuel cells.

The molar conductivity of  $0.025 \text{ mol L}^{-1}$ , methanoic acid is  $46.1 \text{ scm}^2 \text{ mol}^{-1}$ . Calculate its degree of dissociation and dissociation constant.



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2. What is spectrochemical series? Explain the difference between a weak field ligand and a strong field ligand.





3. Mention the factors that affect the rate of chemical reaction.

For a reaction, the rate law is  $k[A]^{1/2}[B]$ . Can this reaction be an elementary reaction?

The rate constant for the first-order decomposition of  $H_2O_2$  is given by the following equation

$$\log K = 14.2 - \frac{1.0 \times 10^4 K}{T}$$

Calculate  $E_a$  for this reaction and rate

constant  $k$  if its half life period be 200 min.

$$\left( R = 8.314 JK^{-1} \text{mol}^{-1} \right)$$



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4. (i) Draw the structures of all isomeric alcohols of molecular formula,  $C_5H_{12}O$  and give their IUPAC names.

(ii) Classify the isomers of alcohols in the above question as primary, secondary and tertiary alcohols.



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5. How will you convert phenol to benzoic acid?



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6. A colourless substance 'A' ( $C_6H_7N$ ) is sparingly soluble in water and gives a water soluble compound 'B' on treating with mineral acid. On reacting with  $CHCl_3$  and alcoholic potash 'A' produces an obnoxious smell due to the formation of compound 'C'. Reaction of 'A'

with benzenesulphonyl chloride gives compound 'D' which is soluble in alkali with  $NaNO_2$  and HCl

'A' forms compound 'E' which reacts with phenol in alkaline medium to give an orange dye 'F'. Identify compounds 'A' to 'F'.



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7. Explain the name reaction Wolf-Kishner reduction by giving an example.



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