



# CHEMISTRY

## BOOKS - USHA CHEMISTRY (ODIA ENGLISH)

### PREVIOUS YEAR QUESTION 2018

#### Previous Year Question

1. What is the value of spin only magnetic moment of  $Fe^{2+}$  ion?



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2. In ZnS crystal,  $Zn^{2+}$  ions occupy \_\_\_\_\_ void.



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3. The inert gas used in beacon lights is \_\_\_\_\_



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4. The unit of rate constant for a zero order reaction is \_\_\_\_\_



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5. Write the IUPAC name of isopropyl alcohol



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6. Between formaldehyde and acetaldehyde which gives Cannizzaro's reaction ?



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7. What is the molarity of 10% (w/v) NaOH solution?



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8. With an example, explain roasting.



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9. 50 ml of  $\frac{N}{10}$  NaOH. solution, 100 ml of  $\frac{N}{5}$  NaOH solution and 500ml of  $N/2$  NaOH solution are mixed together. What is the strength of the resultant solution?



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10. Explain why HCl is a gas and HF is a liquid at room temperature.



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**11.** How can you convert ethanol to ethene ?



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**12.** What are tranquilizers? Give two examples.



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**13.** Prove that for a 1st order reaction, the time taken for 99% completion of the reaction is

twice the time required for the completion of 90% of the reaction.



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14. What happens when calcium acetate is dry distilled ?



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15. Give two difference between crystalline and amorphous solids.



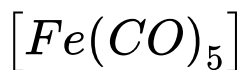
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16. What are antibiotics? Writedown the name of two antibiotics.



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17. Write the IUPAC name of the compounds.



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**18.** Differentiate between multimolecular and macromolecular colloids.



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**19.** Boiling point of water is  $100^{\circ}C$ . Calculate the boiling point of an aqueous solution containing 5g urea (mol. mass = 60) in 100 g water. ( $K_b$  for water =  $0.52K \cdot kg \cdot mol^{-1}$ )



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20. What is lanthanide contraction? Write any two of its consequences.



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21.  $FeSO_4$ , solution mixed with  $(NH_4)_2SO_4$ , solution in 1:1 molar ratio gives the test for  $Fe^{2+}$  ion but  $CuSO_4$ , solution mixed with aqueous ammonia in 1:4 molar ratio does not give the test for  $Cu^{2+}$  ion. Explain.



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22. Why phenol is acidic in nature ?



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23. Explain the Hofmann bromamide reaction with one example.



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24. What are addition and condensation polymerisation? Give one example of each.



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**25.** What is a semiconductor? What are n-type and p-type semiconductors?



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**26.** Explain why transition metal ions are usually coloured.



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**27.** Explain the amphoteric behaviour of amino acids.



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**28.** State and explain Kohlrausch's law of independent migration of ions.



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**29.** Write the assumptions of crystal field theory. Discuss the pattern of splitting of d-

orbitals under the effect of an octahedral crystal field.



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**30.** Define an expression for the rate constant of a 1st order reaction. Define half life period. A first order reaction takes 69.3 minutes for 50% completion. How much time will be needed for 80% completion?



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**31.** How can you distinguish between primary, secondary and tertiary alcohols? With equation explain how does ethyl alcohol react with (i) acidified  $K_2Cr_2O_7$  solution and(ii) phosphorous pentachloride?



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**32.** An organic compound (A) with molecular formula  $C_8H_8O$  forms an orange precipitate with 2, 4 dinitrophenyl hydrazine and gives yellow precipitate on heating with iodine in

presence of sodium hydroxide. It neither reduces Tollen's reagent nor Fehling solution and it also does not decolourise bromine water or Baeyer's reagent. On drastic oxidation with chromic acid it gives a carboxylic acid (B) having molecular formula  $C_7H_6O_2$ . Identify the compound (A) and (B) and explain in detail the reactions involved



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**33.** What is Willámson synthesis?





34. A transition metal ion has configuration  $[Ar]3d^4$  is in tripositive oxidation state. Its atomic number is

A. 25

B. 26

C. 32

D. 19

**Answer:**



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35. Vitamin  $B_{12}$  is known as -

A. Thiamine

B. Riboflavin

C. Pyridoxine

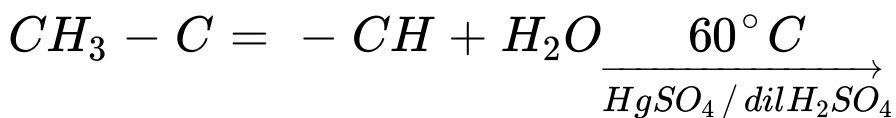
D. Cyano cobalamin

**Answer:**



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36. What is the product of the following reaction



A.  $CH_3COCH_3$

B.  $CH_3 - CH_2 - CHO$

C.  $CH_3 - \underset{\parallel}{C} - H$

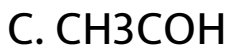
D.  $CH_3 - CH_2 - CH_3$

**Answer:**



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37. The main product formed during hydrolysis of methyl nitrile in acid medium is -



**Answer:**



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38. The total number of atoms per unit cell of a face centred cubic crystal is

A. 1

B. 2

C. 3

D. 4

**Answer:**



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39. The overall order of reaction which has rate expression,  $\text{Rate} = K[A]^{1/2}[B]^{3/2}$  is \_\_\_\_\_

A. 1

B. 2

C. 3

D. Zero

**Answer:**



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40. The alloy containing a non-metal is \_\_\_\_\_.

A. brass

B. bronze

C. steel

D. White metal

**Answer:**



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