

# CHEMISTRY

## BOOKS - ARIHANT PUBLICATION

### QUESTION PAPER 2019

#### Group A

1. The general electronic configuration of lanthanoids is \_\_\_\_\_



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2. Which product is obtained when methyl cyanide is reduced by sodium and ethyl alcohol?



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3. Answer the following questions.

Write the names of two oligosaccharides.



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4. Name the catalyst used in the contact process of manufacture of  $H_2SO_4$



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5. When the value of van't Hoff factor is less than one, this shows that the solute undergoes \_\_\_\_\_ in the solution.



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6. What are the monomers of Nylon 6,6?



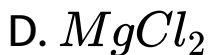
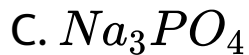
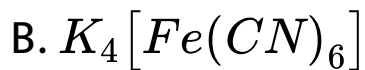
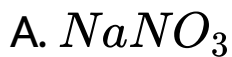
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7. how many atoms are present per unit cell of a body centred cubic crystal ?



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8. Which of the following electrolytes is most effective in the coagulation of gold sol ?

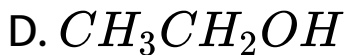
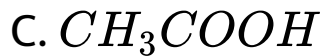
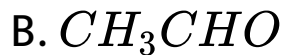
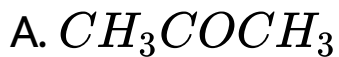


**Answer: D**



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**9. The compound that reduces Tollens' reagent is**



**Answer: B**



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**10.** Which of the following noble gases is abundant in air ?

A. He

B. Ne

C. Ar

D. Kr

**Answer: C**



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**11.** Choose and write the correct answer of the following:

Which one is the ore of copper?

A. Haematite

B. Chalcopyrite

C. Dolomite

D. Bauxite

**Answer: B**



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**12. Sulphur dioxide gas does not act as**

A. oxidising agent



B. reducing agent

C. dehydrating agent

D. bleaching agent

**Answer: C**



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**13.** Which of the following solutions of KCl will have highest specific conductance ?

A. 0.0001 N

B. 0.001 N

C. 0.01 N

D. 1.0 N

**Answer: D**



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**14.** Which base is present in RNA but not in DNA?

A. Uracil

B. Cytosine

C. Guanine

D. Thymine

**Answer: D**



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## Group B

1. Explain what are ionic and covalent solids. Give one example of each.



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2. An organic compound having molecular formula  $C_3H_7Br$  on treatment with aqueous KOH solution gave the compound (A). When the vapour of the compound (A) was passed over red hot copper at  $300^\circ C$  compound (B) was formed. The compound (B) on treatment with  $I_2$  and dil. NaOH, formed a yellow solid (C). Identify the compounds A,B and C.



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### 3. Answer the following

What is the action of chlorine with

(i) cold and dilute NaOH and

(ii) hot and concentrated NaOH?



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### 4. Answer the following

What do you mean by biodegradable and non-biodegradable polymers? Give an example of a synthetic biodegradable polymer.





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5. Discuss Reimer-Tiemann reaction.



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6. Write a note on hydrogen-oxygen fuel cell.



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7. Discuss the structure of  $[Co(NH_3)_6]^{3+}$  ion on the basis of valence bond theory. Whether it is an inner orbital or outer orbital complex ion ?



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8. The rate constants of a reaction at 500 K and 700 K are  $0.025 \text{ sec}^{-1}$  and  $0.075 \text{ sec}^{-1}$  respectively. Calculate the energy of activation

of the reaction. ( $R = 8.314JK^{-1}$  and  $\log 3 = 0.447$ )



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**9.** Elucidate the differences between soaps and detergents.



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**10.** Answer any seven questions of the following



Discuss van Arkel Boer method for ultrapurification of zirconium.



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11. The osmotic pressure of a solution containing 50 g of a solute in one litre of solution at 300K is 20.5 atmosphere. Calculate the molecular mass of the solute.



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**12.** Answer the following:

Match the diseases of Group (A) with the vitamins of Group (B) correctly:

Group (A)		Group (B)	
(a)	Xerophthalmia	(i)	Vitamin-D
(b)	Scurvy	(ii)	Vitamin-K
(c)	Coagulation of blood	(iii)	Vitamin-A
(d)	Rickets	(iv)	Vitamin-C



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**13.** Answer any seven questions of the following:

What are bidentate ligands? Give an example.



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**14.** Answer any seven questions of the following:

What happens when yellow phosphorus is heated with dilute NaOH solution?



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**15.** What are freons ? What are their harmful effects on the environment ?



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**16.** How does Schottky defect arise ? In which type of ionic compounds does this defect arise ?



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**17.** Answer any seven questions of the following:

$CuSO_4$  solution is electrolysed for 20 minutes with a current of 3 amperes. What mass of copper will be deposited at the cathode?



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**18.** Answer any seven questions of the following:

Under which condition the rate of reaction

becomes equal to the specific reaction rate?

Write the expressions for the rate of reaction

of



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**19.** What happens when KI solution is added to acidified  $K_2Cr_2O_7$  solution?



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20. What are antioxidants ? Give two examples.



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## Group C

1. What are oil in water and water in oil type of emulsions ? Give one example of each type.



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2. Name four factors affecting adsorption of gases by solids.



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3. What are enzyme catalysts? Give a reaction involving an enzyme catalyst.



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4. A solution contains 72% water and 28% methyl alcohol. Calculate the mole fraction of each component in the solution.



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5. State Raoult's law. How is the molecular mass of a solute determined from lowering of vapour pressure measurement ?



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6. Starting from nitrobenzene how will you prepare benzene diazonium chloride ? Give the method of synthesis of (i) p-hydroxy azobenzene and (ii) fluorobenzene from benzene diazonium chloride.



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7. How can you prepare fluorebenzene using benzene diazonium chloride.



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**8.** What happens when acetic acid is reduced by lithium aluminium hydride



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**9.** How is acetic acid prepared from methyl magnesium bromide ?



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**10.** Describe the Siemen's method preparation of ozone.



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**11.** What happens when ozone reacts with PbS?



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