



# CHEMISTRY

## BOOKS - ACCURATE PUBLICATION

### SOLVED SAMPLE PAPER, MARCH - 2021

#### Section A

1. The depression in freezing point for 1M urea, 1M glucose and 1 M NaCL are in the ratio,

A. 1 : 2 : 3

B. 3 : 2 : 2

C. 1 : 1 : 2

D. None of the above

**Answer: C**



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2. A pressure cooker reduces cooking time because :

A. heat is more evenly distributed

B. the higher pressure tend rises the food

C. the boiling point of water inside the cooker is elevated.

D. the boiling point of water inside the cooker is depressed.

**Answer: C**



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3. which of the following mode of expressing the concentration is independent of temperature?

A. Molarity

B. Normality

C. Formality

D. Molality

**Answer: D**



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4. Find the mass of glucose that should be dissolved in 50g of water in order to produce the same lowering of vapour pressure as produce by dissolving 1 g of urea in the same quantity of water

A. 1g

B. 3g

C. 6g

D. 9g

**Answer: B**



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5. Which of the following have lowest boiling point ?

A. He

B. Ne

C. Ar

D. Na

**Answer: D**



6. Which of the following alcohol will be most reactive towards Lucas Reagent ?

- A. Methyl alcohol
- B. Primary alcohol
- C. Secondary alcohol
- D. Tertiary alcohol

**Answer: D**



7. How many ions are produced from the complex



in solution ?

A. 6

B. 4

C. 3

D. 2

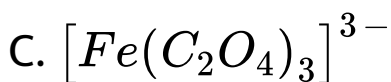
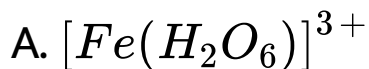
**Answer: C**





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8. Amongst the following, the most stable complex is



**Answer: C**



9. which among the followings is known as Invert sugar ?

A. Glucose

B. Maltose

C. Sucrose

D. Fructose

**Answer: C**



10. Which among the followings is Fibrous protein ?

A. Albumin

B. Keratin

C. Insulin

D. None of the above

**Answer:**



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11. Gabriel phthalimide is used for preparation of

- A. Aromatic amines
- B. Secondary amines
- C. Tertiary amines
- D. Primary aliphatic amines

**Answer: D**



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12. Which among the followings is most basic in aqueous solution

A. primary methyl amine

B. aniline

C. sec-methyl amine

D. tert-methyl amine

**Answer: C**



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13. Which among the followings is most acidic ?

A. Acetic acid

B. Formic acid

C. Chloroacetic acid

D. Ethanol

**Answer: C**



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14. Which among the followings undergoes aldol condensation ?

A. Methanal

B. Benzaldehyde

C. Propanal

D. None of above

**Answer: C**



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15. The colour of precipitates in Iodoform reaction is

A. White

B. Alkane

C. Orange

D. Brown

**Answer: B**



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**16.** In clemmensen reduction aldehyde changes into

A. Alcohol

B. Alkene

C. Alkane

D. Alkyne

**Answer: C**



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17. One faraday contains the charge

A. 95000 C

B. 96500 C

C. 94500 C

D. 95600 C

**Answer: B**



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18. The metal with minimum enthalpy of atomisation is: Hg, Mn, Fe, Cu.

A. Hg

B. Mn

C. Fe

D. Cu

**Answer: A**



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19. Which type of colloids are stable in nature ?



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20. What are lyophilic colloids?



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21. Pitcher plant eats insect because-



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**22.** What are protective colloids ?



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**23.** What do you understand by protection of colloids ?



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**24.** Why haloalkanes are more reactive than haloarenes towards nucleophilic substitution

reaction ?



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**25.** Alcohols reacts with sodium metal to release hydrogen gas True/False



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**26.** Why carboxylic acids are more acidic than Phenols ?



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27. Glycogen is called animal starch



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28. Why amines have lower boiling point than alcohols and carboxylic acids of comparable molecular masses ?



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## Section B

1. Sodium chloride solution freezes at lower temperature than water but boils at higher temperature than water . Explain.



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2. Boiling point of water at 750 mm Hg is 96.63 degree celsius. How many sucrose is to be added to 500 g of water such that it boils at 100 degree celsius ? Molal elevation constant



for water is

$0.52 \text{ kg mol}^{-1}$ .



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**3.** The vapour pressure of pure liquids A and B are 450 and 700 mm Hg at 350 K respectively. Find out the composition of the liquid mixture if total vapour pressure is 600 mm Hg. Also find the composition of the vapour phase.



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4. Define conductivity and molar conductivity for the solution of an electrolyte. How do they vary when the concentration of electrolyte in the solution increases ?



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5. Calculate the half-life of a first order reaction from its rate constant which is  $200 \text{ S}^{-1}$



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6. A reaction is first order in A and second order in B

How is the rate affected on increasing the concentration of B three times ?



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7. Why do noble gases have large atomic size



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8. Which form of sulphur shows paramagnetic behaviour and why ?



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9. Compare and explain bond angles of  $H_2O$  and  $H_2S$



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10. What are interstitial compounds ? Why are such compounds well known for transition metals.



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11. Why are  $Mn^{2+}$  compounds more stable than  $Fe^{2+}$  compounds towards oxidation to their +3 state ?



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12. What is meant by unidentate, didentate and ambidentate ligands ? Give two examples for each.



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13.  $[Fe(CN)_6]^{4-}$  and  $[Fe(H_2O)_6]^{2+}$  are of different colours in dilute solutions. Why ?



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14. Explain the factors affecting rate of a reaction.



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## Section C

1. Calculate the potential of hydrogen electrode in a solution whose pH is 10.



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2. Compare and explain the reactivity of different alcohols towards sodium.



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3. Compare and explain the acidic nature of phenols .



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4. Show that the time required for 99% completion of a first order reaction is twice the time required for the completion of 90%.



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5. A first order reaction takes 40 min for 30% completion. Calculate  $t_{\frac{1}{2}}$ .



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6. Why is dioxygen gas but sulphur a solid?



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## Section D

1. Explain, why transition metal ions usually show paramagnetic behaviour ?



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2. Why enthalpy of atomisation of the transition elements are quite high ?



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3. Why transition metals are generally coloured ?



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4. Transition elements and their compounds are found to be good catalysts. Give examples.



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5. Why  $Cr^{2+}$  is strongly reducing while  $Mn^{3+}$  is strongly oxidising ?



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6. The  $d^1$  configuration is very unstable in transition

metal ions. Explain why ?



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7. Write the main product when n-butyl chloride is treated with alcoholic KOH.



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**8.** What happens when -

bromobenzene is treated with Mg in the presence of dry ether



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**9.** What happens when :

Ethyl chloride is treated with (aq) KOH.



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**10.** Methyl bromide is treated with sodium in the presence of dry ether.



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**11.** What happens when :

Methyl chloride is treated with KCN.



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**12.** Explain the following reaction reaction :

Sandmeyer's reaction.



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**13.** Write the following reactions:

Finkelstein reaction



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**14.** Write down following name reaction :

Hunsdiecker reaction



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**15.** Give the following reactions:

Fitting reaction



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**16.** Explain the following reactions :

Ulmann reaction



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