

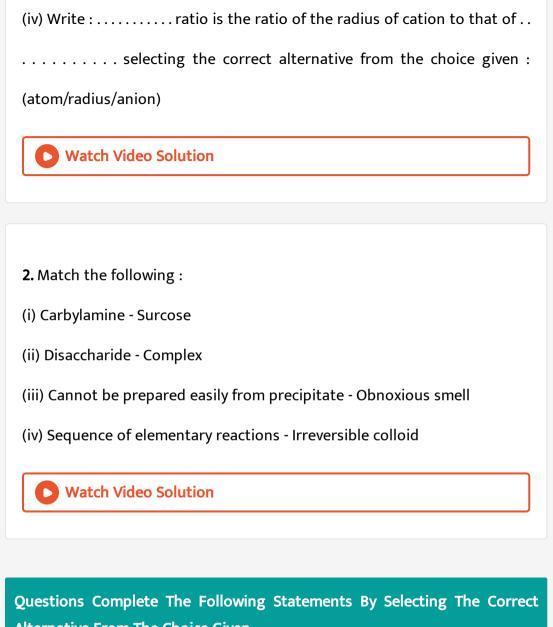
CHEMISTRY

BOOKS - KALYANI CHEMISTRY (ENGLISH)

SELF ASSESSMENT PAPER 7

Questions

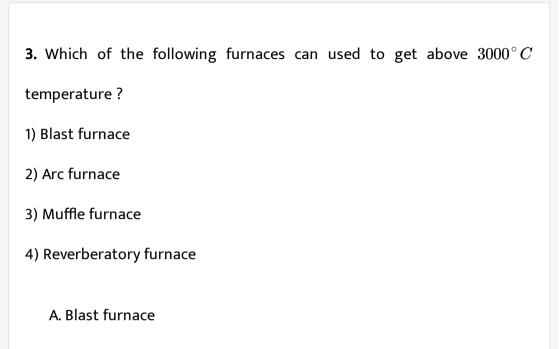
1. Fill in the blanks by choosing the appropriate word/words from those
given in the brackets : (aromatic oxide, aromatic hydride, bleaching,
oxidizing, higher, molecule, lower, cation, a reducing, anode, cathode, alkyl
halide)
(i) Aromatic ether is prepared by heating with
(ii) $CaOCl_2$ acts as \dots agent because of its \dots
properties.
(iii) In a galvanic cell, electrons flow from
through the connecting wires.



Alternative From The Choice Given

1. Phenol is less acidic than

A. Wthanol
B. o-nitrophenol
C. o-methylphenol
D. o-methoxyphenol
Answer:
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2. Nucleophide substitution reaction is slowest with:
A. Iodolkanes
B. Fluoroalkanes
C. Chlorolkanes
D. Bromoalkanes
Answer:
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B. Arc furnace

Answer:

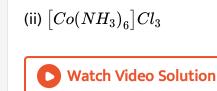
C. Muffle furnace

D. Reverberatory furnace

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4. The value of van't Hoff factor (i) =2 is for

A. Glucose
B. Sucrose
C. Calcium chloride
D. Sodium chloride
Answer:
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Questions Answer The Following Questions
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3. What are interstitial compounds? Why are such compounds well known for transition metals?



4. A solution is obtained by mixing 300g of 25% solution ad 400 g of 40% solution by mass. Calculate the mass percentage of the resulting solution.



5. For a first order reaction, show that time required for 99% completion is twice the time required for the completion of 90% of reaction.



6. What are limited spectrum are antibiotics? Give one example.



7. What is meant by the term 'broad spectrum antibiotics'? Explain.



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8. During nuclear explosion, one of the products is ${}^{90_{Sr}}$ with half-life of 28.1 years. If 1µg of

 $^{90_{Sr}}$ was absorbed in the bones of a newly born baby

instead of calcium, how much of it will remain after 10 years and

60 years if it is not lost metabolically.



9. Explain the following with at least one example: Carbylamine reaction.



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10. (i) Which alkyl hailde from the following pair is chiral and undergoes faster $S_N 2$ reaction ?



- (ii) Out of $S_N 1$ and $S_N 2$ which reaction occurs with
- (a) Inversion of configuration
- (b) Recemisation



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11. Give one example of a fibrous protein. Name the final product of hydrolysis of proteins. What is denaturation of proteins ?



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12. Give any chemical test to distinguish between the following pair of compounds: acetine and phenol.



13. Give chemical test to distinguish: ethyl alcohol and sec - propyl alcohol.



14. In a reaction between A and B, the initial rate of reaction was

measured for different initial concentrations of A and B as given below:

0.20

0.40

B/M 0.30 0.10 0.05 r_0 /Ms⁻¹ 5.07 × 10⁻⁵ 5.07 × 10⁻⁵ 7.6 × 10⁻⁵

What is the order of reaction with respect to A and B?

0.20



A/M

15. A sample of drinking water was found to e severely contaminated with chloroform $(CHCl_3)$ supposed to e a carcinogen. The level of contamination was 15 ppm (by mass).

- (i). Express this in percent by mass
- (ii). Determine the molality of chloroform in the water sample.



16. Niobium crystallizes in body centred cubic structure. If its density is

8.55 g $cm^{\,-\,3}$, calculate the atomic radius of niobium. (Atomic mass of Nb

= 93u , $N_A=6.02 imes 10^{23} mol^{-1}$)



- 17. How are the following colloidal solutions prepared?
- (a) Sulphar in water
- (b) Gold in water



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water video Solution

18. What are emulsions? What are their different types? Give an example of each type.



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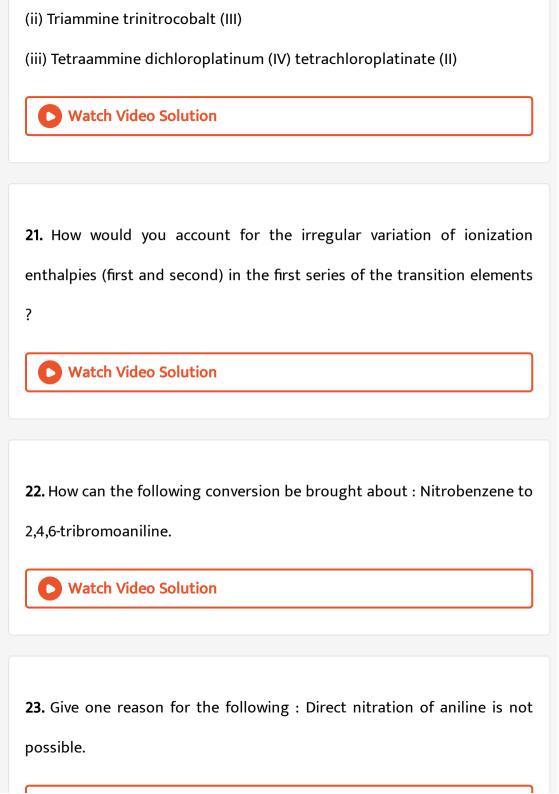
19. The air is a mixture of a number of gases. The maojr components are oxygen and nitrogen with approximate proportion of $20\,\%$ is to $79\,\%$ by volume at 298 K. The water is in equilibrium with air at a pressure of 10 atm. At 298 K if the Henry's law constants for oxygen and nitrogen at 298 K are 3.30×10^7 mm and 6.51×10^7 mm respectively, calculate the composition of these gases in water.



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 $\textbf{20.} \ \textbf{Write the formuse of the following coordination compounds:}$

(i) Potassium tetracyanonickelate(0)



24. How would you account for the following :

- (i) Out of the d^4 species, Cr^{2+} is strongly reducing while manganese (III) is strongly oxidising.
- (ii) Cobalt (II) is stable in aqueous solution but in the presence of complexing reagents it is easily oxidized.
- (iii) The d^1 configuration is very unstable in ions.



25. Giving examples differentiate between calcination and roasting.



26. Three electrolytic celss A,B,C containing solutions of $ZnSO_4$, $AgNO_3$ and $CuSO_4$, respectively are connected in series. A steady current of 1.5 amperes was passes through them until 1.45 g of silver deposited at the

cathode of cell B. How long did the current flow ? What mass of copper and zinc were deposited.

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27. A solution of $Ni(NO_3)_2$ is electrolysed between platinum electrodes using a current of 5 amperes for 20 minutes what mass of Ni is deposited at the cathode?



28. Draw the structures of white phosphorus and red phosphorus. Which one of these two types of phosphorus is more reactive and why?



29. Write the conditions to maximise the yield of H_2SO_4 by Contact proces.

30. Considering the parameters such as bond dissociation enthalpy, electron gain enthalpy and hydration enthalpy, compare the oxidising power of F_2 and Cl_2



s-p bonding between hydrogen and other elements of the group].

31. The HNH angle value is higher than HPH, HAsH and HSbH angles. Why?

[Hint: Can be explained on the basis of sp_3 hybridisation in NH_3 and only

 $A \stackrel{LiAlH_4}{\longrightarrow} C_2H_5OH \stackrel{PBr_3}{\longrightarrow} B \stackrel{KCN}{\longrightarrow} C \stackrel{D}{\longrightarrow} C_3H_7NH_2 \stackrel{HNO_2}{\longrightarrow} E \stackrel{[O]}{\longrightarrow} K_5Cr_5O_7/H_2$



32. Identify A to F:

- **33.** Write balanced chemical equations for the following and name the reactions occurring in each case :
- (A) Benzaldehyde react with an alcoholic solution of potassium cyanide.
- (B) Propanone is treated with iodine and excess of alkali and warmed.



34. Give one test to distinguish between the following pair. Write the relevant equation. Acetophenone and benzophenone.

