



## CHEMISTRY

### BOOKS - SUNSTAR CHEMISTRY (KANNADA ENGLISH)

### ANNUAL EXAM QUESTION PAPER JULY - 2017

#### Part A

1. State Raoult's law of a binary solution for two volatile liquid components.



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2. Van't Hoff factor for a solution is more than one. what is the conclusion drawn from it ?

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3. Write the anodic reaction taking place at  $H_2 - O_2$  fuel cell.

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4. Rate of reaction,  $A \rightarrow rB$  increases two times by increasing the concentration 'A' by four times, what is the order of a reaction?

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5. What happens to the entropy of a gas after adsorption?

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6. Name the method of refining of silicon.

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7. Complete the reaction,  $2XeF_4 + 3H_2O \rightarrow \text{---} + 6HF$ .

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8. Name the major product obtained when tertiary butyl bromide is heated with alcoholic KOH solution.

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9. Give the IUPAC name of  $CH_2 = CH - CHO$ .

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10. Give an example for fat soluble vitamin.

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1. How is ferrimagnetism arises in substances? Give an example of substance showing ferrrimagnetism.

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2.  $\lambda_m^\circ$  for  $NaCl$ ,  $HCl$  and  $CH_3COONa$  are 126.4, 425.9 and  $91.0 \text{ S cm}^2 / \text{mol}$  respectively. Calculate  $\lambda_m^\circ$  for  $CH_3COOH$ .

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3. In a reaction  $2A \rightarrow \text{product}$ , the concentration of A decreases from  $0.5 \text{ mol L}^{-1}$  to  $0.4 \text{ mol L}^{-1}$  in 10 minutes. Calculate the rate during this interval.

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4. Study of actinide elements is difficult. Give two reasons.

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5. Explain Kolbe's reaction.

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6. Among methonic acid and ethanoic acid which is more acidic and why?

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7. Name (i) Artificial sweetening agent used only in cold food. (ii) Anionic detergent.

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8. Give an example each for antifertility drug and antiseptics .

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## Part C

1. (a) Write the chemical reactions involved in the extraction of gold using sodium cyanide.



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2. Write the composition of copper matte.



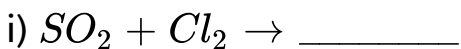
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3. Write the balanced chemical equation with condition involved in the manufacture of nitric acid by Ostwal's process .

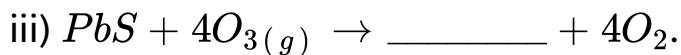
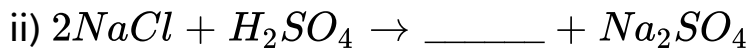


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4. Complete the following reactions :







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5. Give reason: (i) ICl is more reactive than  $I_2$ . (ii) Fluorine exhibit only -1 oxidation state. (iii) H-F is liquid but other hydrogen halides are gases.

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6. Give any two reasons for the formation of large number of complex compounds by transition metals.

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7. Write the formula to calculate spin only magnetic moment.

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8. Write the balanced equation in the manufacture of  $K_2Cr_2O_7$  from chromite ore

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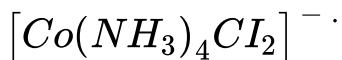
9. Using valence bond theory explain geometry, hybridisation and magnetic property of  $[CoF_6]_3^-$  (Atomic number of Co = 27).

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10. Give any two postulates of Werner's theory.

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11. Write the structure of trans isomer of



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Part D

1. Calculate the packing efficiency in Face Centred Cubic (FCC) structure.

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2. Give any two differences between Frenkel and Schottky defects .

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3. The vapour pressure of pure benzene at a certain temperature is 0.850 bar. A non-volatile, non-electrolyte solid weighing 0.5g, when added to 39.0g of benzene (molar mass of benzene  $78\text{g mol}^{-1}$ ) vapour pressure of

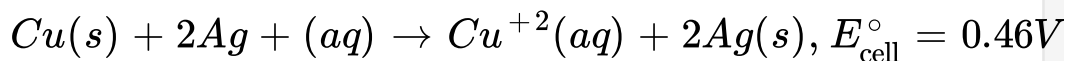
the solution then is 0.845 bar. What is the molar mass of the solid substance?

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4. What is Reverse Osmosis? Mention its one particular utility.

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5. Calculate the equilibrium constant for the reaction



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6. Write half cell reaction and  $E^{\circ}$  Value of (SHE) standard hydrogen electrode.

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7. Derive an integrated rate for first order reaction.

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8. Write any two factors responsible for effective collisions.

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9. What is shape selective catalysis? Give an example of such type of catalyst.

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10. What are emulsions? Give an example of oil dispersed in water (o/w) type emulsion.

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11. Mention any one application of adsorption.

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12. Write steps involved in  $S_N1$  mechanism to the conversion of tertiary butyl bromide into tertiary butyl alcohol and mention its order.

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13. Aryl halides are less reactive towards nucleophilic substitution reaction. Give four reasons.

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14. Write the mechanism of acid catalysed dehydration of ethanol to ethene.

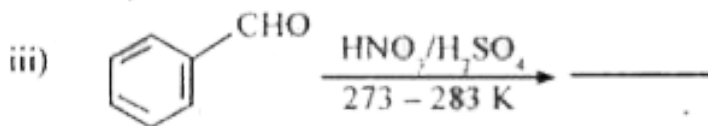
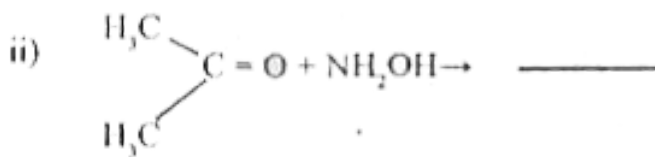
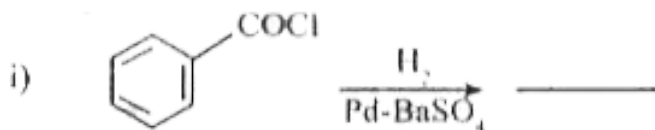
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15. Explain Reimer-Tiemann reaction.

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16. Complete the reaction



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17. Explain Cannizzaro reaction with an example.

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18. Explain Hoffmann bromamide degradation reaction.

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19. Name the major organic product formed in the following conversion. (i) When nitrous acid is treated with methyl amine. (ii) Benzene diazonium chloride is treated with KI

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20. Which is more basic among methyl amine and aniline?

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21. Give the Haworth structure of lactos.

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22. What are essential amino acids ? Give an example.

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23. Name the pentose sugar present in RNA molecule.





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**24.** Name the monomer present in following polymer.

i) Nylon - 6

ii) Natural rubber

iii) Neoprene.



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**25.** What are co-polymers? Give example.



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