



CHEMISTRY

BOOKS - SUNSTAR CHEMISTRY

(KANNADA ENGLISH)

II PUC CHEMISTRY SUPPLEMENTARY EXAM QUESTION PAPER JUNE -2019

Part A

1. Write the unit of molality of a solution.



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2. At a given temperature, oxygen gas is more soluble in water than Nitrogen gas. Which one of them has higher value of K_H .



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3. State Faraday's first law of electrolysis.



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4. Give an example for pseudo first order reaction.



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5. Enthalpy of physical adsorption is quite low:
Give reason.



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6. Name the method used for concentration of sulphide ores.



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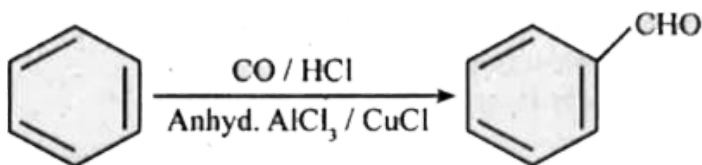
7. Among Noble gases which one is most abundant in air?



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8. Name the major organic product formed when 2-bromopentane is heated with alcoholic potassium hydroxide solution.

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9.

Name the above reaction .

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10. Name the Hormone which, regulates blood sugar level.



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Part B

1. Which type of extrinsic semiconductor is formed when silicon is doped with phosphorus? Mention the major charge carrier in it.



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2. Draw a neat labeled diagram of Standard Hydrogen Electrode (SHE). Write its Half-Cell reaction.



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3. Name any two factors affecting the rate of a reaction.



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4. Zr and Hf have almost identical atomic radii.

Give reason.



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5. (a) Zr and Hf have almost identical radii : Give reason.

(b) Name the gas liberated when Lanthanoids (Ln) react with acids.



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6. How does phenol react with Conc. HNO_3 ?

Give equation.



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7. Explain Cannizzaro reaction with an example.



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8. What is the role of the following chemicals in food?

Sodium benzoate



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9. What is the role of the following chemicals in food?

Saccharin



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10. What is saponification? Write the equation to get sodium stearate by this method.



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Part C

1. With a neat labelled diagram, describe the extraction of aluminium by Hall - Haroult process.



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2. In the extraction of Aluminium by Hall-Herault process:

Give the equation of overall cell reaction.



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3. In the extraction of Aluminium by electrolysis

Role of cryolite



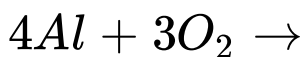
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4. For the manufacture of Ammonia by Haber's process, write the flow chart and chemical equation with suitable conditions.



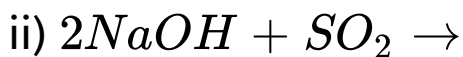
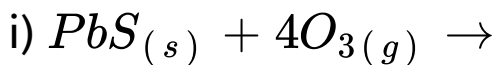
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5. Complete the following equation:



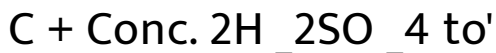
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6. a) Complete the following equations:



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7. Complete the following equations:



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8. Mention any two reasons for anomalous behaviour of Fluorine.



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9. Write the structure of perchloric acid
($HClO_4$)



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10. (a) Calculate the spin only magnetic moment of Ti^{3+} ion (Atomic number of Ti = 22).

(b) Cu^{2+} salt solutions are coloured : given reason.



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11. (a) Calculate the spin only magnetic moment of Ti^{3+} ion (Atomic number of Ti = 22).

(b) Cu^{2+} salt solutions are coloured : given reason.



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12. Write the balanced equations involved in the preparation of potassium dichromate from chromite ore.



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13. Explain the hybridization, geometry and magnetic property of $[Co(NH_3)_6]^{3+}$ ion on the basis of Valence Bond Theory (VBT).
[Atomic number of Co= 27].



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14. For a given complex $[Co(NH_3)_5NO_2]Cl_2$.
Write its IUPAC name and Linkage isomer.



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15. Which set of d-orbitals of a metal atom/ion experience more repulsion in octahedral field created by the ligands?



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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. On dissolving 2.34g of non-electrolyte solute in 40g of benzene, the boiling point of solution was higher than benzene by 0.81K. K_b value for benzene is $2.53 \text{ K kg mol}^{-1}$. Calculate the molar mass of solute. [Molar mass of benzene is 78 gmol^{-1}]





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4. State Henry's law.



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5. How solubility of a gas in liquid changes with increase in temperature?

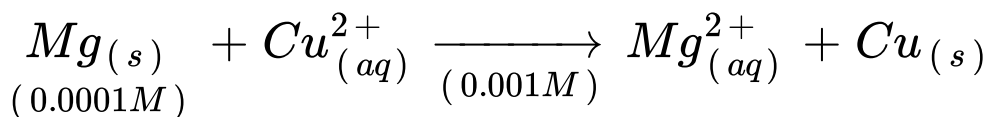


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6. For a given data

$$: E_{Mg^{2+} / Mg}^{\circ} = - 2.37V, E_{Cu^{2+} / Cu}^{\circ} = + 0.34V$$

Calculate the emf of the cell in which the following reaction takes place .



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7. State Kohlrausch law of independent migration of ions.



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8. Write the overall cell reaction in mercury cell.



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9. Derive an integrated rate equation for the rate constant of a first-order reaction.



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10. The rate constant of a reaction is doubled when the temperature increased from 400K to 410K. Calculate the activation energy (E_a)

$$\left[R = 8.314 JK^{-1} \text{ mol}^{-1} \right].$$



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11. How is Gold-sol prepared by Bredig's-arc method?



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12. What is homogenous catalysis? Give an example.



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13. How does entropy change for adsorption?



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14. (a) Write the equations for the steps involved in SN^1 mechanism for the

conversion of tert-butyl bromide to tert-butyl alcohol.



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15. Explain Friedel -Crafts alkylation for chlorobenzene. Give equation.



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16. What is racemic mixture ?



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



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18. Write general equation for preparation of ether by Williamson synthesis.



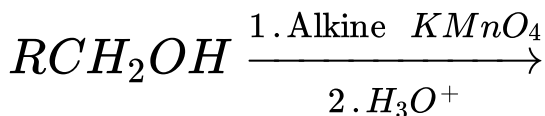
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19. Among alcohols and phenols which one is more acidic?



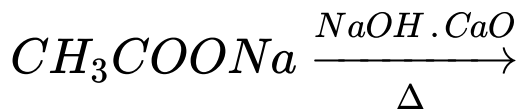
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20. Complete the following chemical reaction



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21. Complete the following equations:



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22. Explain Aldol condensation reaction for acetaldehyde. Write equation.



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23. What is Formalin solution?



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24. How does Primary amine undergo carbyl amine reaction? Give chemical equation.



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25. How aniline is prepared by Hoffmann bromamide degradation reaction? Give equation.



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26. Write the general formula of diazonium salt



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27. Write Haworth structure for maltose.



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28. Name naturally occurring optically inactive α - amino acid.



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29. How many peptide bonds are present in a tripeptide?



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30. Deficiency of which Vitamin causes Night blindness?



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31. What is meant by polymerization? Name the monomer used in the preparation of Polyvinyl Chloride (PVC).



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32. Write partial structure of the following polymer.

Polypropene.



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33. Write partial structure of the following polymer.

Teflon



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34. Write the partial structure of Neoprene



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