



## CHEMISTRY

**BOOKS - JEEVITH PUBLICATIONS CHEMISTRY**

**(KANNADA ENGLISH)**

**ANNUAL EXAMINATION QUESTION PAPER**

**NORTH-2019**

**Part A**

**1. What is the SI unit of electric current?**



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2. State Dalton's law of partial pressure and write mathematical form.

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3. Write the conjugate base of  $\text{HCO}_3^-$ .

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4. Write the valence shell electronic configuration of P-block elements.

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5. Assign the oxidation number of Mn in  $MnO_4^-$

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6. Name the alkali metal which has high hydration enthalpy.

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7. Give the chemical formula of Borax.

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8. What are silicones?

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9. Write IUPAC name  $CH_3 - \underset{\substack{| \\ CH_3}}{CH} - \underset{\substack{| \\ OH}}{CH} - CH_3$

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10. Name the organic product obtained when Benzene is treated with excess of chlorine in presence of anhydrous Aluminium chloride.

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Part B

1. A solution is prepared by adding 2 g of a substance A to 18 g of water. Calculate the mass percent of the solute.

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2. Derive the relation between Density and Molar mass of a gaseous substance from ideal gas equation.

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3. Write the resonance structures of ozone.

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4. What happens when

(i) Quicklime is heated with silica.

(ii) Sodium burns vigorously in oxygen.

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5. Diamond is covalent yet it has high melting point. Why?

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6. How to prepare benzene from ethyne?

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7. Explain the mechanism of Friedel craft alkylation of benzene.

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8. What are particulate pollutants? Give an example

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## Part C

1. Define Electronegativity. How does it vary along a group?

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2. Which of the following will have most negative electron gain enthalpy?

P,S,Cl,F

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3. Explain sp-hybridisation in  $BeCl_2$  molecule.

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4. Write any two differences between sigma-bond and Pi-bond.

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5. Name the type of Hydrogen bonding in ortho-nitrophenol.

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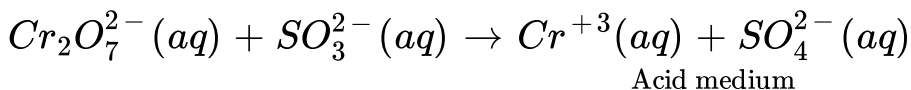
6. Write the Electronic configuration of Oxygen molecule.

Predict its magnetic property and calculate its bond order.

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7. Balance the Redox -reaction by using Oxidation number

method in acidic medium



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8. How temporary Hardness of water is removed by Boiling?

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9. What is the composition of water gas?

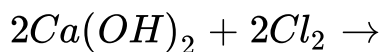
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10. Complete the following reactions.



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11. Complete the following reactions.



\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_

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12. Lithium shows diagonal relationship with Magnesium.

Give reason.

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13. Write the chemical formula of Inorganic benzene.

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14. Write the dimeric structure of Aluminium chloride.

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15. Define catenation.

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## Part D

1. Calculate the amount of carbondioxide produced by the combustion of 24g of methane.

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2. Define Mole. What is the Value of Avagadro's Number.

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3. Express the number 232.508 in scientific notation.

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4. What are the observation made in Rutherford  $\alpha$ - particle experiement.

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5. Write any three postulates of Bohr's model for hydrogen atom.



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6. Name any three quantum numbers and write their significance.



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7. State heisenberg's uncertainty principle. Write the mathematical equation.



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8. Write any three postulates of Kinetic theory of gases.



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9. Define critical temperature. Write the value of critical temperature for  $CO_2$ .

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10. Calculate the standard enthalpy of formation of Methane. Given that the standard enthalpy of combustion of Methane, carbon and Hydrogen are  $-893.3\text{kJ}$ ,  $-3.93\text{kJ}$  and  $-285.8\text{kJ}$  respectively.

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11. What is the change in the value of entropy when ice melts to give water.



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**12.** State Hess's law of constant heat summation. Illustrate with example.



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**13.** Mention any two thermodynamic criteria for spontaneous process.



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**14.** Define equilibrium constant of a reaction. What is the unit of equilibrium constant.

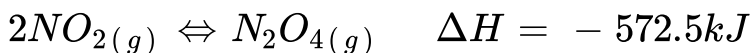






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15. What is the effect of increase in temperature for the reaction?



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16. Write the relationship between the solubility and solubility product of AB type salt.



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17. Calculate the  $pH$  of 0.001 M NaOH. Assuming complete dissociation of base.



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18. Classify the following species into lewis acid and lewis base.

(i)  $OH^-$  (ii)  $BCl_3$



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19. Give an example for basic buffer.



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20. Explain functional isomerism with an example.



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21. For the compound  $CH \equiv C - CH = CH - CH_3$

(i) Write the bond line formula for the compound.

(ii) Identify the number of Sigma and Pi-bonds.

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22. What are free radicals.

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23. How do you estimate carbon and hydrogen present in the organic compound by Leigbits method. (Diagram not necessary)

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24. What are nucleophiles? Give one example.

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25. Explain the mechanism of chlorination of methane.

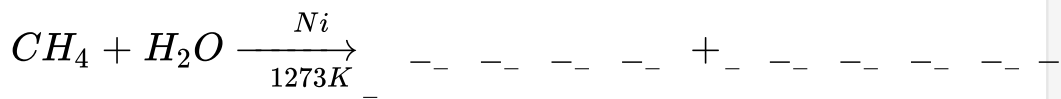
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26. Complete the following



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27. Complete the following



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