



## CHEMISTRY

**BOOKS - JEEVITH PUBLICATIONS CHEMISTRY**

**(KANNADA ENGLISH)**

**ANNUAL EXAMINATION QUESTION PAPER**

**NORTH-2017**

**Part A**

1. Mention the relation between degree Fahrenheit and degree celsius.



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2. State Boyle's law.

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3. Write an example for the reaction in which  $K_p = K_c$

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4. Nitrogen has higher ionisation enthalpy than that of Oxygen. Give reason.

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5. What happens to oxidation number of an element during reduction?

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6. Which alkali metal is the strongest reducing agent?

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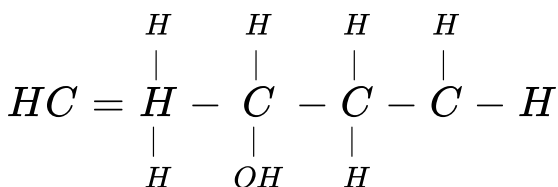
7. Solid carbon dioxide is also known as \_\_\_\_\_

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8. Name any one allotrope of carbon in which carbon is  $SP^2$  hybridised.

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9. Write the bond line structure for



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10. Name the product formed when ethyne gas is passed through red hot iron tube.

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## Part B

1. Express 0.00034 in scientific notation.



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2. How many significant figures are there in 0.00425?



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3. A balloon is filled with hydrogen gas at room temperature. It will burst if pressure exceeds 0.2 bar. If

at 1 bar pressure the gas occupies 2.27L volume, upto what volume can the balloon be expanded?

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4. Write electronic configuration of oxygen molecule and calculate its bond order.

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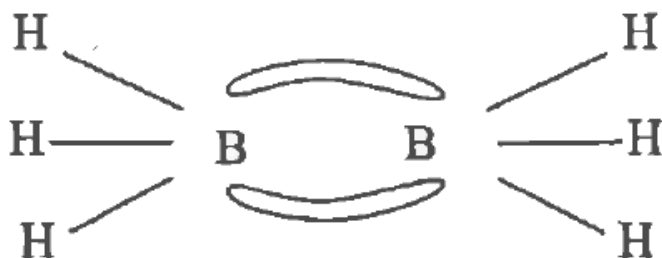
5. How is quick lime prepared? Give equation.

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6. Write (a) the molecular formula of inorganic benzene.

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7. Structure of diborane.



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8. How ethane is prepared by dehydrohalogenation?

Write equation.



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9. Write the structure of cis and trans isomer of But-2-ene.



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10. Write two harmful effects of acid rain.



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Part C



1. What are isoelectronic species?

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2. How electronegativity vary down the group in the periodic table?

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3. Explain the formation of  $BCl_3$  molecule based on hybridisation.

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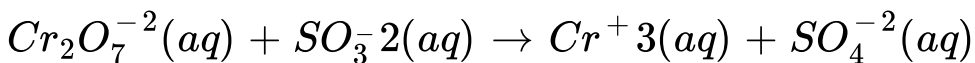
4. Write any three postulates of VSEPR theory.

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5. Define dipole moment of a polar bond. Show that  $BeF_2$  molecule has zero dipole moment.

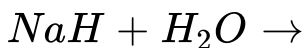
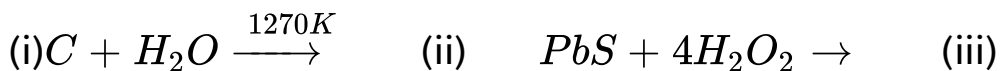
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6. Balance the following redox reaction by using Oxidation number method in acidic medium.



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7. Complete the following reactions



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8. Write chemical formula for the following:

a. Washing soda    b. plaster of Paris    c. Lime stone

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9. Name a member of group 14 element in the periodic table which is used as semi conductor.





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10. Give reason : (i) Boron is used as control rods in nuclear reactor.

(ii) Graphite is soft and slippery.



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## Part D

1. Mention three postulates of Dalton's atomic theory.



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2. What is Empirical formula? Give an example for a compound whose Empirical formula and molecular formula are the same.

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

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4. What is photoelectric effect? Give one example.

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5. State (i) Pauli's exclusion principle.



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6. State Hund's rule



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7. State Heisenberg's uncertainty principle.



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8. What are the atomic numbers of elements whose outermost electrons are represented by (i)  $3S^1$  (ii)  $3P^5$ ?

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9. Define ideal gas. Derive ideal gas equation by using gas laws.

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10. Deduce the value of gas constant R in SI units.

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11. State first law of thermodynamics write its mathematical form.

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12. What is an extensive property of a system? Give one example.

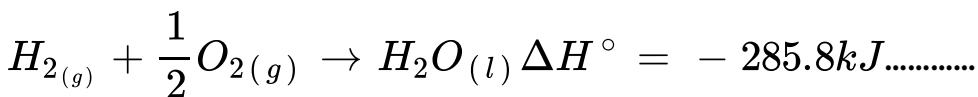
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13. Write the relationship between  $C_p$  and  $C_v$  for ideal gas

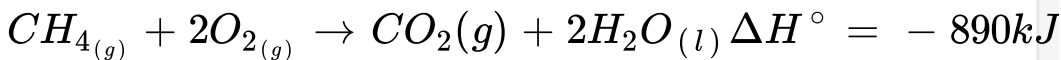
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14. Calculate the enthalpy of formation of methane from the following data.



2



\dots\dots\dots 3



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15. Write Gibb's equation



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16. What is the value of  $\Delta G$  for a spontaneous process?

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17. Give one example each for homogeneous and heterogeneous equilibrium.

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18. For the equilibrium  $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$

Write  $K_P$  and  $K_C$  relationship.

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19. Define Lewis acid. Give one example for Lewis acid.

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## Part E

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



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2. Calculate the pH of 0.001 M HCl solution



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3. How is sulphur detected using sodium fusion extract of given organic compound?



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4. How many sigma and Pi bonds are present in  $CH_2 = C = CHCH_3$ ?



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5. Give one example for heterocyclic aromatic compound.

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6. Write principles involved in estimation of halogen by Carius method.

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7. Give two differences between inductive effect and electromeric effect.

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8. Name the element estimated by Kjeldhal's method.

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9. Explain the mechanism of chlorination of methane.

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10. What happens when ethanol is heated with conc.  $H_2SO_4$ ? Give equation.

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