



CHEMISTRY

BOOKS - JEEVITH PUBLICATIONS
CHEMISTRY (KANNADA ENGLISH)

ANNUAL EXAMINATION QUESTION
PAPER SOUTH-2019

Part A

1. What is the SI unit of density?



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2. Define critical temperature (T_e)



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3. Define pH of a solution.



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4. State the modern periodic law.



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5. What is the oxidation number of Mn in $KMnO_4$



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6. Write the general electronic configuration of alkali metals.



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7. What is dry ice?



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8. What is the composition of water gas?



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9. Explain the homolytic fission.



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10. Name the catalyst used in Friedel -craft reaction.



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Part B

1. Calculate the molarity of a solution containing 2.3 moles of solute dissolved in 4.6 litres.

A. 0.5

B. 1

C. 1.5

D. 2

Answer: A



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2. State Boyle's law and give its mathematical form.



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3. The dipole moment in BF_3 is zero. Explain.



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4. Give the important uses of plaster of paris.



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5. Write the resonance structure of carbonate ion (CO_3^{-2})



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6. Explain Kolbe's reaction of preparation of ethane.



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7. Explain the nitration of benzene.



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8. Name the components of photochemical smog.



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Part C

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



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2. Explain sp^3 hybridisation by taking methane as example.



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3. Write the electronic configuration of Hydrogen molecule. Calculate its bond order and mention its magnetic property.



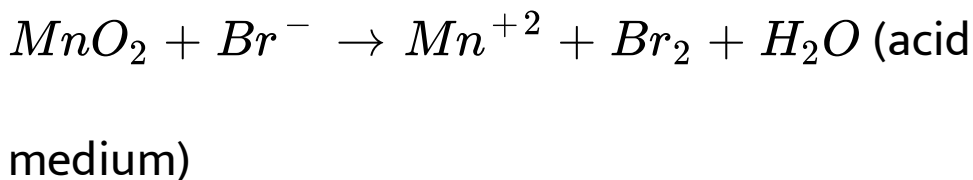
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4. Write any three postulates of VSEPR theory.



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5. Balance the following redox reaction by using oxidation number method.



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6. What are ionic hydrides? Give one example.



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7. What is temporary hardness of water?



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8. Explain the diagonal relationship between Lithium and Magnesium.



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9. Give the structure of diborane.



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Part D

1. An organic compound contains 4.05% hydrogen, 24.26% carbon and 71.67% chlorine. Its molecular mass is 98.96. Find its empirical

and molecular formula (Atomic mass of $H = 1$, $C = 12$, $Cl = 35.45$)



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2. Calculate the molecular mass of glucose.



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



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4. Write the value of n, l and m for electron present in $2P_z$ orbital.



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5. Explain the significance of quantum numbers.



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6. State Hund's rule



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



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8. Write ideal gas equation and explain its terms.



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9. Calculate the standard enthalpy of formation of liquid benzene (C_6H_6). Given the enthalpies of combustion of Carbons (s), Hydrogen (g) and Benzene (l) are -393.5kJ , -285.83kJ and -3267.0 respectively.



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10. State the second law of thermodynamics.





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11. What is an intensive property? Give an example.



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12. State Hess's law of constant heat summation.



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13. What is the exothermic reaction?



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14. Prove that $pH + pOH = pK_w$ at 298 K.



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15. Calculate the pH of 0.01 MH_2SO_4 by assuming complete ionisation.



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16. Define buffer action.



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17. What is common ion effect? Give an example.



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18. Discuss amphoteric nature of water with an example.



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19. Mention the conjugate acid of SO_4^{2-}



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Part E

1. With neat labelled diagram, describe the estimation of nitrogen by Dumas method.



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2. Give any two differences between Inductive effect and Resonance effect.



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3. What are free radical? How are they formed?



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4. Write the structure of 3-methyl-pentanal.





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5. Give the example for $+R$ effect



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6. Explain the mechanism of chlorination of methane.



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7. Explain the mechanism of addition of HBr to propene.



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