



## CHEMISTRY

### BOOKS - OSWAAL PUBLICATION

#### Solved Paper 2016-1

#### Excercise

1. Among the molarity and molality, Which one is temperature dependent?

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2. What is an ideal gas?

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

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4. Give reason. the radius of anion is always greater than neutral atom.

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5. What is the colour of the flame when sodium is subjected to flame test?

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6. Write the general electronic configuration of p-block elements.

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7. Why does  $BCl_3$  acts as lewis acid?



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8. Write the IUPAC name of



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9. What is the product obtained when alkynes are subjected to hydrogenation in the presence of Lindlar's catalyst?



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10. Classify the following into pure substance and mixture. `Copper(s), HCl(aq), NaCl(s) and gold in mercury(i)



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11. Calculate the volume occupied by 8.8 g of  $CO_2$  at  $31.1^\circ C$  and 1 bar pressure ( $R = 0.083 \text{ bar L K}^{-1} \text{ mol}^{-1}$ )

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12. Give any two difference between  $\sigma$  and  $\pi$  bond.

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13. What is called diagonal relationship ?

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14. In group 14, the tendency of the elements to show +4 oxidation state decreases down the group while tendency to show +2 oxidation state increases. Explain

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15. Alkyl halide (halo alkane)+sodium.Complete the chemical equation and name the reaction.

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16. Explain the mechanism of addition of hydrogen bromide to propene.

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17. What is greenhouse effect?Name any one gas which is responsible for the effect.

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18. Give three defects of mendeleev's periodic table.

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

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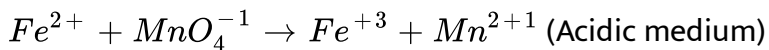
20. What is  $sp^2$  hybridisation? Illustrate the formation of Ionic bond.

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21. Define dipole moment.

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22. Balance the following chemical equation by oxidation number method



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23. Density of water is maximum at  $4^{\circ}C$ .

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24. Name the salt which causes temporary hardness of water.

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25. Give the equation,involved in the manufacture of washing soda by solvay process.

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26. Write any three differences between graphite and diamond.

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27. The molecular mass of an organic compound is 78 amu is known to contain 92.31% of carbon and 7.69% of hydrogen. Determine the empirical and molecular formula of the compound.

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28. Calculate the mole fraction of benzene and carbon tetrachloride in a binary mixture. The no. of moles of benzene is  $0.3 \text{ g mol}^{-1}$  and no. of moles of carbon tetrachloride is  $0.4 \text{ g mol}^{-1}$

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29. Define isotopes and isobars

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30. The Vividh Bharathi station broadcast on a frequency of 136 kHz. Calculate the wavelength of electromagnetic radiation by the transmitter. (*Velocity of light* =  $3 \times 10^8 \text{ ms}^{-1}$ )

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31. Deduce the de-Broglie matter wave equation.

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32. Give the possible values of  $l, m,$  and  $s$  when  $n=2$

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33. Write the difference between orbit and orbital.

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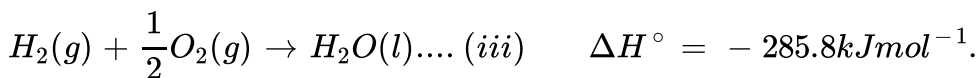
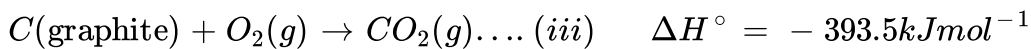
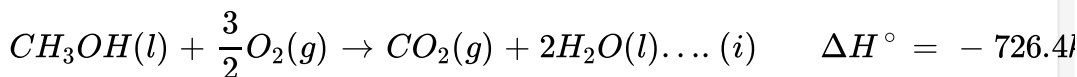
34. Write the postulates of kinetic theory of gases.

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35. Calculate the value of R for one mole of an ideal gas S.I unit.

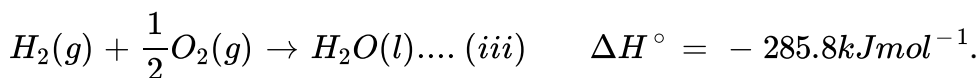
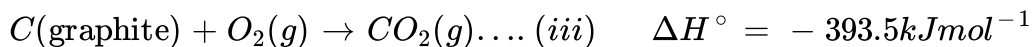
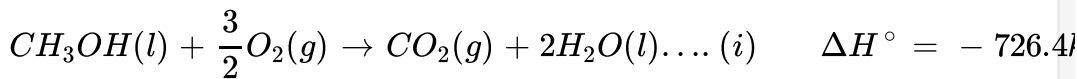
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36. Calculate the enthalpy of formation of methanol from the following data,



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37. Calculate the enthalpy of formation of methanol from the following data,



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38. State the third law of thermodynamics.

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39. Construct Born-Haber cycle to calculate the lattice energy of NaCl from the following data:

$$\Delta_f H. NaCl(s) = -411.2 \text{ kJ mole}^{-1};$$

$$\Delta_{(i)} H. Na(g) = +495.8 \text{ kJ mole}^{-1}.$$

$$\Delta_{(eg)} H. Cl(g) = -348 \text{ kJ mole}^{-1}.$$

$$\Delta_{(sub)} H. Na(s) = +108.4 \text{ kJ mole}^{-1}.$$

$$\Delta_{(D)} H. Cl_2(g) = +242.0 \text{ kJ mole}^{-1}.$$

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40. Derive Henderson equation.

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41. The  $\text{H}_3\text{O}^+$  ion concentration of solution is  $1.3 \times 10^{-5} \text{M}$ . Calculate its pH.

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42. For the manufacture of Ammonia by Haber's process, write the equation and optimum conditions for maximum yield of ammonia.

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43. Write the relationship between  $K_p$  and  $K_c$

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44. Discuss common ion effect on the solubility of an ionic salt.

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45. Explain functional isomerism with example.

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

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47. Arrange the following  $1^\circ$ ,  $3^\circ$  and  $2^\circ$  carbo cations in the increasing order of their stability

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48. How is Lassaigne's extract prepared? How do you detect nitrogen by Lassaigne's test?

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49. Define chromatography. Mention its type which depends on selective adsorption and desorption

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50. Explain the mechanism of chlorination of methane.

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51. Classify the following into meta or ortho and para directing groups.:

–  $NH_2$

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52. Classify the following into meta or ortho and para directing groups.:

–  $CHO$



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53. Classify the following into meta or ortho and para directing groups.:

–  $CH_3$



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