CHEMISTRY

BOOKS - OSWAAL PUBLICATION

Solved Paper 2020-1

Excersice

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1. What is the S.I. unit of volume?

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2. Write the mathematical expression for Boyle's law.

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3. write the equilibrium constant in term of concentration $A + B \leftrightarrow C + D$ equilibrium equation.

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4. Give the general electronic configurations of 'd' block elements.

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5. What is the oxidation state of oxygen in peroxide i.e. $H2O2$?

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6. Alkali Metlas are soft metals why?

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7. What type of hybridization does carbon undergo in diamond and graphite ?

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8. What is Catenation?

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9. Expand the IUPAC.

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10. Write the general formula of alkynes.

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11. If the density of some lake water is 1.2.5 g mL^{-1} and contains 92 g of Na^+ ions per kg of water, calculate the molality of Na^+ ions in the lake.

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12. Define visocity of a liquid.

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13. State Charle's law. Give the mathmatical expression.

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14. How is ethyl bromide converted into ethylbenzene by Friedel - Crafts reactions ? Give the equations.

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15. Wurtz reaction using bromoethane yields

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16. Name the components of photochemical smog.

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17. What is ionisation energy? How does ionisation energy vary along the period in the modern periodic table ?

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18. Write any three postulates of Molecular orbital theory.
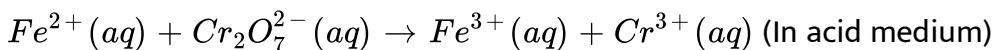
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19. Explain SP^2 hybridisation in ethene molecule.

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20. Give any two difference between σ and π bond.

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21. Balance the following redox reaction by half reaction method.

$Fe^{2+}(aq) + Cr_2O_7^{2-}(aq) \rightarrow Fe^{3+}(aq) + Cr^{3+}(aq)$ (In acid medium)

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22. Explain the laboratory preparation of dihydrogen.

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23. Give any three differences between lithium and other akali metals.

24. Explain the structure of diamond giving the reason for its harness as well as non conductivity of electricity.

25. A compound contains 4.07% hydrogen,24.27% carbon and 71.65% chlorine.Its molar mas is 98.96 g.What are its empirical formula and molecular formula?

26. What is ter molecular reaction ? Give an example.

27. Summarize the Bohr's Model of an atom.

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28. What are isotopes?Give an example.

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29. Write the significance of four quantum numbers.

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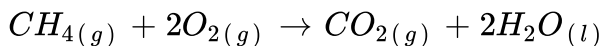
30. Who discovered neutron?

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31. Write any four postulates of kinetic theory of gases

32. What is an ideal gas?

33. The standard entropy change ΔS_r° for

$$CH_{4(g)} + 2O_{2(g)} \rightarrow CO_{2(g)} + 2H_2O_{(l)}$$

is -242.98 JK^{-1} at $25^\circ C$. Calculate the standard reaction enthalpy for

the above reaction if standard Gibbs energy of formation of

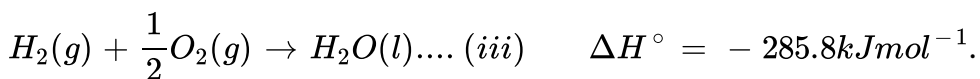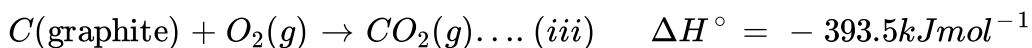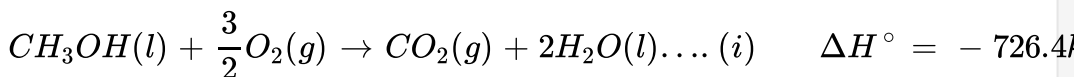$CH_{4(g)}, CO_{2(g)}$ and $H_2O_{(l)}$ are -50.72, -394.36 and - 237.13 kJ mol^{-1}

respectively.

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

$$CH_3OH(l) + \frac{3}{2}O_2(g) \rightarrow CO_2(g) + 2H_2O(l)\ldots. (i) \qquad \Delta H^\circ = -726.4k$$

$$C(\text{graphite}) + O_2(g) \rightarrow CO_2(g)\ldots. (iii) \qquad \Delta H^\circ = -393.5kJmol^{-1}$$

$$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l)\ldots. (iii) \qquad \Delta H^\circ = -285.8kJmol^{-1}.$$
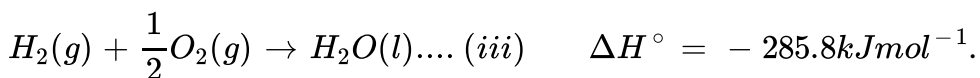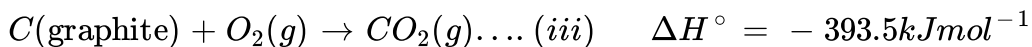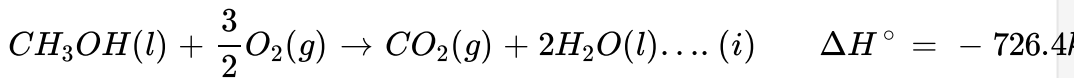
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35. Calculate the enthalpy of formation of methanol from the following data,

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$$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l)\ldots. (iii) \qquad \Delta H^\circ = -285.8kJmol^{-1}.$$

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36. What is an isolated system ?

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

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38. What is entropy?Given its unit.

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39. What is an endothermic reaction ? Give an example.

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40. Explain Bronsted-Lowry concept of Acid and Base.

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41. What is conjugate acid and conjugate base for NH_3?

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42. Write the relationship between K_p and K_c

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43. Calculate the ph of 0.001 MH_2SO_4

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44. Define buffer action.

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45. What is hydronium ion?

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46. How sulphur is estimated by Carius method and give calculation.

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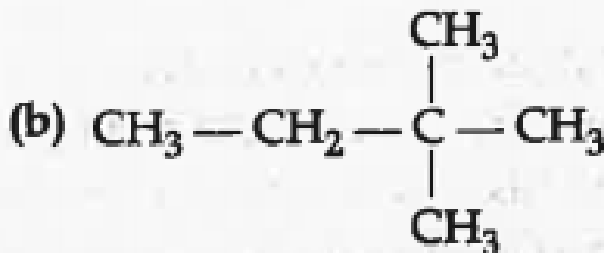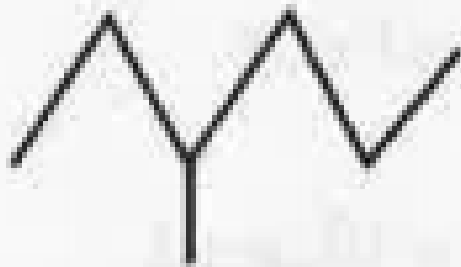**47.** What is Frenkel defect? Give an example.

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48. Define a homologous series of carbon compounds, List any two characteristics of a homologous series.

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49. Write the IUPAC Name.

(a)

(b) $CH_3 - CH_2 - \overset{\displaystyle CH_3}{\underset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - CH_3$

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50. Explain the mechanism of addition of HBr to propene with equations.

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51. How do you convert benzene into benzene hexachloride (BHC)?