



CHEMISTRY

BOOKS - OSWAAL PUBLICATION

Sample Paper 2

Exercise

1. Define avogadro's law.



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2. What are real gases ?



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3. Given an example of spontaneous process.



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4. Among Na^+ , Ca^+ and $\text{Al}^{(3+)}$ which is having smallest size?



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5. Determine the oxidation state of Cl in $KClO_4$



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6. Why is potassium more reactive than sodium?



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7. What is called as inorganic benzene ?



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8. Which oxide of carbon is an anhydride of carbonic acid?



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9. Which gas is liberated in Kjeldahl's method?



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10. Name the hydrocarbon which contains acidic hydrogen?



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11. Explain law of constant composition with suitable example.



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12. What is standard boiling point of the liquid?



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13. What is the SI unit of viscosity.



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14. Give any two differences between σ and π bond.



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15. What is the reaction of alkali metal with oxygen (air)? Give suitable reaction



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16. Which of the following is acidic and why?

SiO₂, Al₂O₃, PbO₂



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17. Show that presence of three double bonds in benzene.



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18. How does ozonolysis takes place in ethene?



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19. What is the cause of acid rain?How is ti harmful to the environment?



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20. Give two reason , why the number of elements in first period is only 2 ?



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21. Write the general electronic configuration of f-block elements.



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22. What is hydrogen bonding?



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23. HF is liquid where as HCl is gas. Give suitable reason.



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24. Write the resonance structure of CO_2 .



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25. Write the lewi's dot structure of lithium molecule. Calculate its bond order also.



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26. Balance the redox reaction using oxidation number method:



(In acidic medium)



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27. Name the substance which are responsible for the permanent hardness of water



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28. Write any one method for removing permanent hardness of water, with its principle.



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29. Give one suitable reason for diagonal relationship of lithium with magnesium.



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30. Name an alkali metal carbonate which is thermally unstable and why? Give its decomposition reaction.



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31. How would you explain lower atomic radius of Ga as compared to Al?



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32. Write any one use of zeolite.



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33. Define mole fraction.



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34. Define Avogadro constant (N_A).



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35. Determine the empirical formula of an oxide of Iron which has 69.9% Iron and 30.1% dioxygen by mass. [Atomic mass of $Fe = 56$, $O = 16$]



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36. The number of electrons, protons and neutrons in a monoatomic species are equal to 36, 35 and 45 respectively. Assign the proper symbol.



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37. Calculate the wavelength, frequency and wave number of a light wave whose period is $2.0 \times 10^{-15} \text{ s}$. (Given speed of light $c = 3 \times 10^8 \text{ ms}^{-1}$)



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38. How many sub-shells are there in N-shell?

How many orbitals are there in d-subshells?



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39. State $(n+1)$ rule. Write the electronic configuration of an element with atomic number 25, according to the rule.



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40. State Charle's law. Give the mathematical expression.



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41. A student forgot to add the reaction mixture to the round bottomed flask at $27^{\circ}C$ but put it on the flame. After a lapse of time, he realised his mistake. By using a pyrometer, he found that the temperature of the flame was $477^{\circ}C$. What fraction of air would have been expelled out?(2+3)



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42. In each of the following process predict the mode of energy change: Radio



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43. In each of the following process predict the mode of energy change: Electronic toaster



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44. In each of the following process predict the mode of energy change: Sky jump.



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45. 2.5 mole of an ideal gas at 2 atm and 27°C expands isothermally to 2.5 times of its original volume against the external pressure of 1 atm. Calculate work done (Given $R=0.082 \text{ L atm K}^{-1} \text{ mol}^{-1}$)



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46. Define entropy. Predict in which of the following, entropy increases or decreases: A liquid crystallises into a solid.



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47. Define entropy. Predict in which of the following, entropy increases or decreases:
 $\text{H}_2(\text{g}) \rightarrow 2\text{H}(\text{g})$



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48. Write Gibb's Helmholtz equatin. Write significance of each term used in the equation.



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49. Define atomic mass.



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50. Define Law of mass action.



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51. Write the characteristics of chemical equilibrium.



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52. Write the conjugate bases of the following:



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53. Write the conjugate bases of the following:



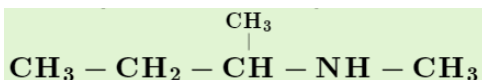
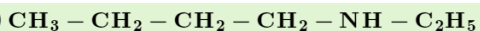
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54. Define solubility product. Write its any two applications.



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55. Write the IUPAC name of the following compounds.



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56. What are nucluophiles? Give example.



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57. Define: Hyperconjugation effect,



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58. Define : Inductive effect.



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59. Write the principle and the formula involved in the estimation of nitrogen by Duma's method.



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60. State Markownikoff's Rule.



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61. Explain the mechanism of sulphonation of benzene?



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