



CHEMISTRY

BOOKS - OSWAAL PUBLICATION

Sample Paper 4

Exercise

1. State the law of conservation of mass.



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2. Define dispersion forces.



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3. Write the relationship between K_p and K_c



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4. What is the IUPAC name for the element with atomic number 111.



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5. Define reduction in terms of electronic concepts?



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6. Why do alkali metals have low ionisation enthalpy?



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7. Write do you understand by silicones?



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8. Give the name of suitable adsorbent in the process of column chromatography.



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9. What is aromaticity



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10. Write any two main points of Modern Atomic theory.



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11. Give any two differences between ideal and real gas.



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12. Calculate the formal charge on underlined element in the given species: $\underline{C}O_3^{2-}$



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13. Calculate the formal charge on underlined element in the given species: $\underline{N}O_2$



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14. What is the formula of gypsum? What happens when it is heated?



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15. What is the heating action on orthoboric acid?



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16. Write the possible isomers of Pentane



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17. Give an example of aromatisation reaction.



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18. How could green chemistry help to reduce pollution (Write two point.)



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19. Explain any three features that affect the ionisation enthalpy.



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20. Define dipole moment. Write any two applications of dipole moment.



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21. Write any three main features of the VSEPR theory.



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22. Draw energy level diagram of He_2^+ ion. Calculate its bond order and its magnetic nature?



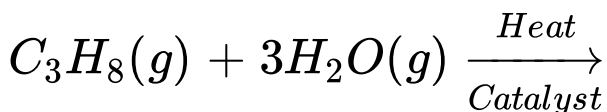
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23. Balance the following equation in basic medium by ion-electron method: $\text{P}_4(\text{s}) + \text{OH}^-(\text{aq}) \rightarrow \text{PH}_3(\text{g}) + \text{H}_2\text{PO}_2^-(\text{aq})$



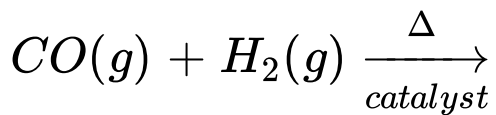
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24. Complete the following reactions:



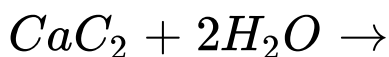
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25. Complete the following reactions:



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26. Complete the following reactions:



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27. Give the suitable reason for the following statements: A solution of Na_2CO_3 is alkaline.



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28. Give the suitable reason for the following statements: Alkali metals are prepared by the electrolysis of their fused chlorides.



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29. Give the suitable reason for the following statements: Sodium is found to be more useful than potassium.



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30. State as why : Conc. HNO_3 can be transported in aluminium container.



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31. State as why : Graphite is used as lubricant.



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32. State as why : Diamond is used as abrasive.



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33. A compound on analysis was found to contain $C=34.6\%$, $H=3.85\%$ and $O=61.55\%$. Calculate its empirical formula



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34. Define the terms : Parts per million (ppm)



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35. Define the terms : Mole fraction.



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36. Write the difference between orbit and orbital.



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37. Draw the structure of p-orbitals (Draw the shape of orbital whose Azimuthal quantum no is 1).



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38. Write the electronic configuration of Na^+ and Fe^{2+} ions. (Atomic no. of Na=11, Fe=26)



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39. Calculate the energy of a photon whose wavelength is 3.864×10^{-7} m.



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40. State Gay Lussac's law.



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41. What will be the pressure of the gaseous mixture when 0.5 of H_2 at 0.8 bar and 0.2 L of O_2 at 0.7 bar are introduced in a 1 L vessel at $27^\circ C$?



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42. What is an Extensive property? Give an example.





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43. Explain the difference between endothermic and exothermic reactions with examples.



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44. For the equilibrium,
 $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$ at 298 K,
 $K = 1.8 \times 10^{-7}$. Calculate ΔG° for the
reaction ($R = 8.314 JK^{-1} mol^{-1}$).



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45. Write the characteristics of chemical equilibrium.



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46. Define Arrhenius acid-base theory with one example.



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47. Deduce Hendersons equation for an acidic buffer.



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48. PH value of a saturated solution $Ba(OH)_2$ is 12. Calculate solubility product K_{sp} of $Ba(OH)_2$



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49. Identify electrophile centre in CH_3CHO



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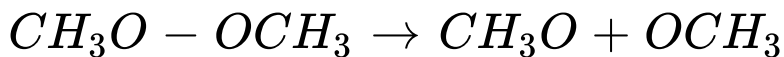
50. What is the difference between disillation and distillation under reduced pressure.



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51. Classify each of the following as homolysis or heterolysis. Identify the reaction

intermediates.



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52. How will you convert benzene into p-chloronitrobenzene?



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53. How will you convert benzene into:
Acetophenone.



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54. Explain the mechanism of Friedel craft alkylation of benzene.



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