



## CHEMISTRY

### BOOKS - OSWAAL PUBLICATION

#### Sample Paper 5

#### Exercise

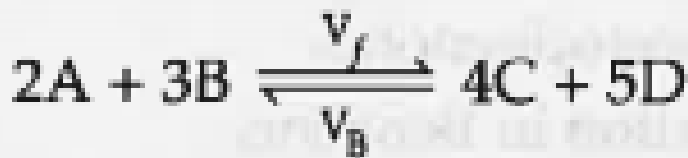
1. Express  $46^{\circ}\text{C}$  in SI unit.

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2. Define critical volume [ $V_e$ ]

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3. Write the expression for  $K_c$  for the following reaction.



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4. What is meant by electro negativity of an atom ?

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5. Define oxidising agent /oxidants in terms of oxidation numbers.

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6. why are alkali metals strong reducing agents?



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7. What is the use of diborane ? Why  $BH_3$  exists in the form of diborane ?

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8. Draw the structure of  $CO_2$ .

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9. Name two elements which are detected by Lassaigne's test.

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10. What type of structural isomerism is shown by alkanes?

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11. Write the following in the exponential notation: 3256 g

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12. Write the following in the exponential notation: 0.0010 g

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13. Give any two main characteristics of gaseous state.

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14. Write the Lewis dot structure of the following molecules or species:  $C_2H_2$

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15. Write the Lewis dot structure of the following molecules or species:  $PCl_3$

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16. Explain anomalous behaviour of Beryllium.

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17. How does aluminium react with sodium hydroxide ?

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18. What is Wurtz reaction? Give example.



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**19.** Write the reaction for combustion of methane.



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**20.** What are the major causes of water pollution ? Write any two causes only.



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**21.** On the basis of their electronic configurations, explain why alkali metals are highly reactive.



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22. What is valence electrons.

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23. What angles are associated with the following orbitals?

$sp$ ,  $sp^2$  and  $sp^3$

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24. Give any two factors which favours ionic bond.

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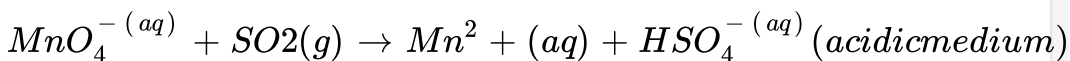
25. Between  $AlCl_3$  and  $AlF_3$  which is covalent?

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26. Draw the energy level diagram of carbon molecule. Calculate its bond order also.

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27. Balance the following redox reaction by ion-electron method:



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28. Distinguish between temporary hardness permanent hardness.

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29. What happens when lead sulphide is reacted with hydrogen peroxide solution ?





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30. Beryllium and magnesium do not impart colour to bunsen flame.

Why?



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31. How could be baking soda prepared commercially ? Write its one use.



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32. Write the balanced quations.:  $BF_3 + LiH \rightarrow$



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33. Write the balanced equations:  $Al + NaOH \rightarrow$

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34. Write the balanced equations:  $B_2H_6 + NH_3 \rightarrow$

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35. What is the number of molecules of  $CO_2$  contains 8 g of  $O_2$ ?

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36. Write any two points of importance of chemistry.

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37. Give the experimental conclusions arrived by Rutherford in the  $\alpha$  scattering experiment or state the postulates of Rutherford atom model.

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38. The electronic configuration of a dispositive ion  $M^{2+}$  is 2,8,14 and its atomic mass is 56. What is the number of electrons, protons and neutrons?

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39. Write electronic configuration of :  $Mn^{4+}$

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40. Write electronic configuration of :  $\text{Zn}^{2+}$

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41. Using the s, p, d, notation, describe the orbital with the following quantum numbers? (a)  $n = 1, l = 0$ , (b)  $n = 2, l = 0$ , (c)  $n = 3, l = 1$ , (d)  $n = 4, l = 3$ .

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42. Using the s, p, d, notation, describe the orbital with the following quantum numbers? (a)  $n = 1, l = 0$ , (b)  $n = 2, l = 0$ , (c)  $n = 3, l = 1$ , (d)  $n = 4, l = 3$ .

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43. Using the s, p, d, notation, describe the orbital with the following quantum numbers? (a)  $n = 1, l = 0$ , (b)  $n = 2, l = 0$ , (c)  $n = 3, l = 1$ , (d)  $n = 4, l = 3$ .

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44. Define vapour pressure.

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45. Define: Viscosity.

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46.  $0.068 \text{ dm}^3$  of a sample of nitrogen is collected over water at  $20^\circ \text{C}$  and 0.92 bar of Hg. What is the volume of dry

nitrogen at NTP? (aq.) tension of water at  $20^{\circ}\text{C}$  is 0.023 bar of Hg)

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47. What is extensive property of a system? Pick out the extensive property from density, surface tension, pressure and heat capacity.

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48. A gas absorbs 2000 J of heat and expands against an internal pressure of 2 atm from volume of 0.5 L to 10.5 L. What is the change in internal energy ( $1 \text{ Latm} = 101.3 \text{ J}$ )

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49. Write any two differences between spontaneous and non-spontaneous processes. Evaporation of lake water is spontaneous or

non-spontaneous process?

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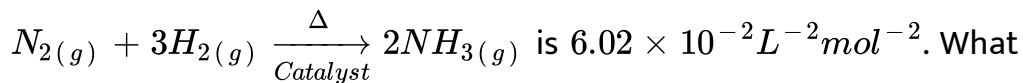
50. Write Gibb's free energy equation and name the terms in it.

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51. Mention any two limitations of Henry's Law.

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52. At  $500^{\circ}C$ , the equilibrium constant for the the reaction.



is the value of  $K_p$  at the same temperature?

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53. Define Bronsted Lowry theory or Protonic theory with one example.

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54. What do you mean by buffer solution?

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

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56. Define solubility product of weak electrolyte.

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57. For the compound  $CH_3 - CH = CH_2$  : IUPAC name.

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58. For the compound  $CH_3 - CH = CH_2$  : Bond line formula

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59. For the compound  $CH_3 - CH = CH - 2$  : Type of hybridised carbon atom at  $2^{\text{nd}}$  position.

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60. Define : Inductive effect.

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**61.** Explain functional isomerism with example.

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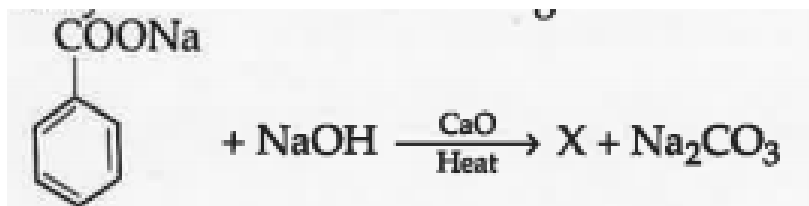
**62.** How would you detect the presence of sulphur in an organic compound by Lassaigne test.

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**63.** Explain the mechanism of sulphonation of benzene?

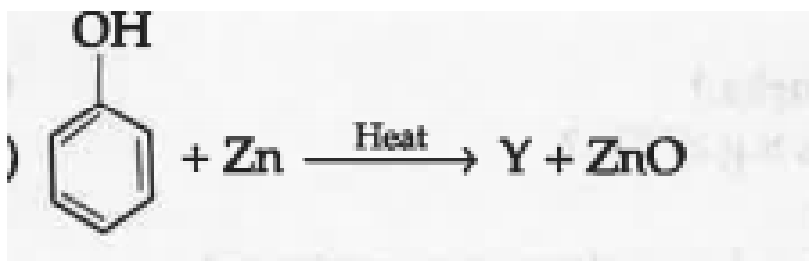
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64. Identify X and Y in the following reactions:



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