

ANSWERS

I. Multiple Choice Questions (Type-I)

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| 1. (ii) | 2. (iv) | 3. (ii) | 4. (iv) | 5. (iii) | 6. (ii) |
| 7. (ii) | 8. (iii) | 9. (ii) | 10. (iii) | 11. (iii) | 12. (iv) |
| 13. (ii) | 14. (iv) | 15. (i) | 16. (iii) | 17. (i) | 18. (i) |

II. Multiple Choice Questions (Type-II)

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| 19. (iii), (iv) | 20. (i), (ii) | 21. (i), (iii) |
| 22. (i), (ii) | 23. (iii), (iv) | 24. (i), (ii) |
| 25. (ii), (iii) | 26. (i), (iv) | 27. (i), (ii), (iii) |

III. Short Answer Type

39. 5 volume H_2O_2 solution means that hydrogen peroxide contained in 1 volume of this solution will decompose to give 5 volumes of oxygen at STP i.e. if 1L of this solution is taken, then 5 L of oxygen can be produced from this at STP. Chemical equation for the decomposition of H_2O_2 is $2\text{H}_2\text{O}_2(\text{l}) \longrightarrow \text{O}_2(\text{g}) + \text{H}_2\text{O}(\text{l})$.

It shows that 68 g H_2O_2 gives 22.7 L of O_2 at STP, so 5 L oxygen will be obtained from :

$$\frac{68\text{g} \times 5\text{L}}{22.7\text{L}} = \frac{3400}{227} \text{ g } \text{H}_2\text{O}_2 = 14.9 \text{ g} \approx 15 \text{ g } \text{H}_2\text{O}_2$$

i.e., 15 g H_2O_2 dissolved in 1 L solution will give 5 L oxygen or 1.5 g H_2O_2 /100 mL solution will give 500 mL oxygen. Thus 15 g/L or 1.5% solution is known as 5V solution of H_2O_2 .

42. [**Hint** : Heavy water; Bond dissociation energy of dihydrogen is less than dideuterium]
44. [**Hint** : $\text{H}_2\text{O} + \text{H}_2\text{O} \longrightarrow \text{H}_3\text{O}^+ + \text{OH}^-$]
45. (i) H_2O_2

IV. Matching Type

63. (i) \rightarrow (i), (j) (ii) \rightarrow (d), (e), (g), (h), (i)
- (iii) \rightarrow (f) (iv) \rightarrow (a), (c)
- (v) \rightarrow (b), (d) (vi) \rightarrow (e)

64. (i) \rightarrow (d) (ii) \rightarrow (c) (iii) \rightarrow (b) (iv) \rightarrow (a)
65. (i) \rightarrow (e) (ii) \rightarrow (d) (iii) \rightarrow (b) (iv) \rightarrow (a)
- (v) \rightarrow (c)
66. (i) \rightarrow (b), (d) (ii) \rightarrow (c) (iii) \rightarrow (a), (c)

V. Assertion and Reason Type

67. (i) 68. (i)

VI. Long Answer Type

73. 68 g, 3.2 g