

Physical Chemistry: Basic to Advanced

1. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

2. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

3. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

4. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

5. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

6. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

7. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction

- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

8. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

9. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

10. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

11. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

12. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

13. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

14. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

15. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

16. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

17. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

18. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

19. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

20. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

21. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

22. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

23. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

24. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

25. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

26. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

27. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

28. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

29. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

30. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

31. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

32. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

33. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

34. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

35. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

36. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

37. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

38. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

39. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

40. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

41. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

42. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

43. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

44. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

45. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

46. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

47. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

48. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

49. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

50. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

51. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

52. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

53. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

54. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

55. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

56. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

57. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

58. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

59. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

60. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

61. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

62. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

63. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

64. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

65. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

66. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

67. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

68. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

69. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

70. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

71. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

72. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

73. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

74. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

75. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

76. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

77. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

78. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

79. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

80. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

81. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

82. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

83. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

84. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

85. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

86. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

87. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

88. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

89. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

90. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

91. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

92. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

93. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

94. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

95. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

96. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

97. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

98. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

99. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

100. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

101. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

102. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

103. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

104. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

105. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

106. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

107. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

108. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

109. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

110. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

111. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

112. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

113. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

114. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

115. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

116. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

117. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

118. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

119. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

120. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

121. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

122. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

123. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

124. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

125. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

126. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

127. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

128. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

129. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

130. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

131. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

132. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

133. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

134. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

135. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

136. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

137. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

138. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

139. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

140. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

141. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

142. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

143. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

144. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

145. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

146. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

147. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

148. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

149. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

150. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

151. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

152. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

153. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

154. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

155. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

156. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

157. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

158. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

159. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

160. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

161. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

162. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

163. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

164. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

165. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

166. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

167. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

168. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

169. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

170. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

171. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

172. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

173. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

174. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

175. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

176. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

177. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

178. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

179. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

180. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

181. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

182. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

183. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

184. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

185. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

186. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

187. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

188. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

189. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

190. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

191. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

192. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

193. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

194. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

195. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

196. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

197. Colloidal particles are:

- A) 0.1–100 nm
- B) 1–10 nm
- C) 100–1000 nm
- D) 0.01–0.1 nm

■ **Correct Answer: A**

■ **Explanation:** Colloidal particles are: Correct option is A.

198. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

199. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

200. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

201. Electrolysis involves:

- A) Spontaneous reaction
- B) Non-spontaneous reaction
- C) Equilibrium
- D) None

■ **Correct Answer: B**

■ **Explanation:** Electrolysis involves: Correct option is B.

202. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

203. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

204. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

205. Root mean square velocity of gas increases with:

- A) Mass
- B) Pressure
- C) Temperature
- D) Density

■ **Correct Answer: C**

■ **Explanation:** Root mean square velocity of gas increases with: Correct option is C.

206. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

207. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

208. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

209. Le Chatelier's principle predicts:

- A) No change in equilibrium
- B) Equilibrium shifts to oppose change
- C) Rate increases only
- D) Equilibrium is destroyed

■ **Correct Answer: B**

■ **Explanation:** Le Chatelier's principle predicts: Correct option is B.

210. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

211. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

212. Standard electrode potential is measured against:

- A) Hydrogen electrode
- B) Copper electrode
- C) Zinc electrode
- D) Silver electrode

■ **Correct Answer: A**

■ **Explanation:** Standard electrode potential is measured against: Correct option is A.

213. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

214. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

215. Catalyst affects:

- A) Equilibrium position
- B) Rate of reaction
- C) Both
- D) None

■ **Correct Answer: B**

■ **Explanation:** Catalyst affects: Correct option is B.

216. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

217. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

218. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.

219. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

220. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

221. Catalyst in contact process is:

- A) V₂O₅
- B) MnO₂
- C) Pt
- D) Fe

■ **Correct Answer: A**

■ **Explanation:** Catalyst in contact process is: Correct option is A.

222. The number of protons in an atom of carbon is:

- A) 6
- B) 12
- C) 14
- D) 8

■ **Correct Answer: A**

■ **Explanation:** The number of protons in an atom of carbon is: Correct option is A.

223. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

224. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

225. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

226. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

227. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

228. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

229. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

230. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

231. Equilibrium constant K is affected by:

- A) Concentration
- B) Temperature
- C) Catalyst
- D) Pressure for solids/liquids

■ **Correct Answer: B**

■ **Explanation:** Equilibrium constant K is affected by: Correct option is B.

232. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

233. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

234. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

235. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

236. Entropy increases when:

- A) Gas condenses
- B) Solid melts
- C) Water freezes
- D) None

■ **Correct Answer: B**

■ **Explanation:** Entropy increases when: Correct option is B.

237. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

238. The quantum number that determines the shape of an orbital is:

- A) n
- B) l
- C) m
- D) s

■ **Correct Answer: B**

■ **Explanation:** The quantum number that determines the shape of an orbital is: Correct option is B.

239. The enthalpy change for an exothermic reaction is:

- A) Positive
- B) Negative
- C) Zero
- D) Depends on temperature

■ **Correct Answer: B**

■ **Explanation:** The enthalpy change for an exothermic reaction is: Correct option is B.

240. Adsorption differs from absorption in that:

- A) It is bulk uptake
- B) It occurs on surface
- C) It is endothermic
- D) It is faster

■ **Correct Answer: B**

■ **Explanation:** Adsorption differs from absorption in that: Correct option is B.

241. The rate of a reaction is independent of the concentration of reactants in:

- A) Zero order
- B) First order
- C) Second order
- D) Third order

■ **Correct Answer: A**

■ **Explanation:** The rate of a reaction is independent of the concentration of reactants in: Correct option is A.

242. van der Waals equation corrects for:

- A) Intermolecular forces only
- B) Molecular volume only
- C) Both volume and forces
- D) None

■ **Correct Answer: C**

■ **Explanation:** van der Waals equation corrects for: Correct option is C.

243. Half-life of a first order reaction is:

- A) Dependent on initial concentration
- B) Independent of initial concentration
- C) Always decreasing
- D) Always increasing

■ **Correct Answer: B**

■ **Explanation:** Half-life of a first order reaction is: Correct option is B.

244. At equilibrium, the rate of forward reaction is:

- A) Greater than backward
- B) Equal to backward
- C) Less than backward
- D) Zero

■ **Correct Answer: B**

■ **Explanation:** At equilibrium, the rate of forward reaction is: Correct option is B.

245. Which of the following is the most stable isotope of hydrogen?

- A) Protium
- B) Deuterium
- C) Tritium
- D) Hydrogen-4

■ **Correct Answer: A**

■ **Explanation:** Which of the following is the most stable isotope of hydrogen? Correct option is A.

246. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

247. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

248. For a spontaneous process, the change in Gibbs free energy (ΔG) is:

- A) Positive
- B) Zero
- C) Negative
- D) Cannot say

■ **Correct Answer: C**

■ **Explanation:** For a spontaneous process, the change in Gibbs free energy (ΔG) is: Correct option is C.

249. The most ideal behavior of gases is observed at:

- A) High pressure, low temperature
- B) Low pressure, high temperature
- C) Low pressure, low temperature
- D) High pressure, high temperature

■ **Correct Answer: B**

■ **Explanation:** The most ideal behavior of gases is observed at: Correct option is B.

250. In a galvanic cell, electrons flow from:

- A) Cathode to anode
- B) Anode to cathode
- C) Salt bridge to anode
- D) Electrolyte to cathode

■ **Correct Answer: B**

■ **Explanation:** In a galvanic cell, electrons flow from: Correct option is B.