CHEMISTRY

BOOKS - UNITED BOOK HOUSE

BEHAVIOUS OF GASES

Exercise

1. The boiling point of water in Kelvin scale is—

A. 273 K

B. 173 K

C. 373 K

D. 473 K

Answer:

2. What are the constants of Charle's law—

A. M and T

B. M and V

C. M and P

D. T and P

Answer:

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3. The value of absolute zero temperature is-

A. $0°C$

B. 273 K

C. $-273K$

D. $-273°C$

Answer:

4. The value of 1 atm is-

A. $1.013 \times 10^5 N/m^2$

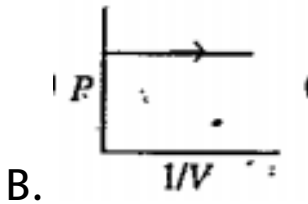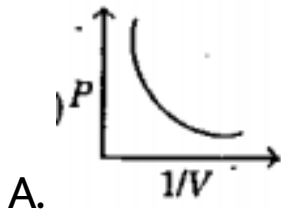B. $1.013 \times 10^5 dy \; \dfrac{\neq}{c} \; m^2$

C. $1.013 \times 10^4 N/m^2$

D. $1.013 \times 10^4 dy \neq /cm^2$

Answer:

5. The nature of $P - \dfrac{1}{V}$ graph is-

A.

B.

C.

D.

Answer:

6. Equation of state of 64 gm oxygen gas is-

    A. PV = RT

    B. PV = 2RT

    C. $PV = \dfrac{RT}{2}$

    D. PV = 64 RT

Answer:

7. Any gas will behave as an ideal gas at

     A. low temperature and low pressure

     B. low temperature and high pressure

     C. high temperature and low pressure

     D. high temperture and high pressure

Answer:

8. At constant pressure, if the temperature of gas is increased then its density-

A. remains the same

B. decrease

C. increases

D. increases or decreases depending on the nature of the gas

Answer:

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9. The unit of PV in the equation PV = RT is-

A. N/m

B. N-m

C. N/m^2

D. $N-m^2$

Answer:

10. At a pressure P , Volume V and Temperature T, the equation of State for 5g of O_2 will be-

A. $PV = \dfrac{5}{32}RT$

B. PV = 5RT

C. $PV = \dfrac{5}{2}RT$

D. $PV = \dfrac{5}{16}RT$

Answer:

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11. The what temperature must a gas at 300K be colled in order to reduce its volume to $\frac{1}{3}rd$ of its original volume, pressure remains constant-

A. 900 K

B. 300 K

C. 600 K

D. 100 K

Answer:

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12. PV-P gaph of an ideal gas is-

    A. parallel to p-axis

    B. parallel to PV-axis

    C. not parallel to any axis

    D. rectangular hyperbolic

Answer:

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13. When an air bubble rises from the bottom of a lake to the surface, its radius, is doubled. Atmospheric pressure is equal' to the pressure of a water column of height it. Depth of the lake is-

    A. H

    B. 2H

    C. 7H

    D. 8H

Answer:

14. Both the volume and the pressure of a definite mass of gas are observed to increase. This is possible when die temperature of the gas-

A. remains increase

B. decrease

C. increase

D. none of these

Answer:

15. The equation of state for n moles of an ideal gas is PV - nRT, where R is a constant: The S.I. unit for R is a constant. The S.I. unit for R is-
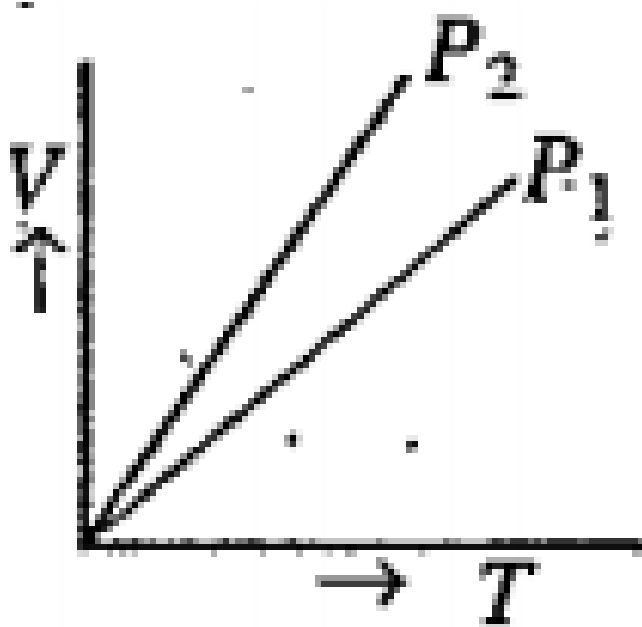
A. Jk^{-1}

B. $Jk^{-1}mo \leq^{-1}$

C. $Jkg^{-1}k^{-1}$

D. $Jk^{-1}g^{-1}$

Answer:

16.

V versus T curves at constant pressure P_1 and P_2 for an ideal gas are shown in fig.

A. $P_1 > P_2$

B. $P_1 < P_2$

C. $P_1 = P_2$

D. $P_1 \geq P_2$

Answer:

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17. If the volume of air at $0°C$ and 10 atmosphere pressure is 10 litre its volume in

litre at normal temperature and pressure would be-

A. 1

B. 10

C. 100

D. 1000

Answer:

18. A gas at certain volume and temperature has a pressure equal to 0.75 m of Hg. If the mass of the gas is doubled at the same volume and temperature, its new pressure will be-

A. 0.75 cm

B. 2 m

C. 1.5 m

D. 0.375 m

Answer:

19. By what percentage should be pressure of a given mass of gas be increased so as to decrease its volume by 10% af a constant temp?

A. 0.091

B. 0.101

C. 0.111

D. 0.121

Answer:

20. The dimension of R (universal gas constant) is-

   A. ML^2T^{-3}

   B. $ML^2T^{-2}K^{-1}$

   C. $ML^2T^{-2}K^{-2}$

   D. MLT^(-2)K^(-1)`

Answer:

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21. Volume of 4.4 g of CO_2 at STP is-

A. 22.4 L

B. 2.24 L

C. 224 L

D. 44.8 L

Answer:

22. Gasdeviates from dieal gas nature because molecules-

    A. are colourless

    B. attract each other

    C. contain covalent bond

    D. show brownian movement

Answer:

▶

23. The number of gram molecules of oxygenis

6.02×10^{24} CO molecule is-

    A. 8 g molecules

    B. 5 g molecules

    C. 2 g molecules

    D. 0.5 g molecules

Answer:

24. Any gas will behave as an ideal gas at

    A. at low temperature

    B. low temperature

    C. high temperature and low pressure

    D. high temperture and high pressure

Answer:

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25. Kinetic theory of gases proves-

A. only Boyles law

B. Only charles law

C. only avogadros

D. all the these

Answer:

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26. Equal volumes of gases similar of temperature contain _____number of molecules.

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27. The volume of a gas is zero at ____temperature.

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28. The velocities of molecules ____ with rise of temperture.

29. The equation of ideal gas for n gram moles is_____.

30. The value of absolute zero is _____ on celsius scale.

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31. What is an ideal gas?

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32. What is universal gas constant?

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33. How do you explain Boyle's law on the molecular level?

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34. State and explain Charles' law.

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35. State Gay Lussac's law of pressure.

36. Give two differences between ideal gas and real gas?

37. State Avogadro's law.

38. What is molar volume of a gas?

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39. Write down two applications of Avogadro's

law.

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40. Write down two charactersitics of gas.

> ▶ Watch Video Solution

41. What is normal temperature and pressure?

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42. Why is boyle's law not applied while a ballon is blown with air?

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43. State Boyles law.

44. State and explain Charles' law.

45. What is an ideal gas?

46. State and explain Charles' law.

47. What is universal gas constant?

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48. Define gram molecular volume?

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49. Establish ideal gas equation.

50. Draw the nature of the graph in the following cases -

P-V

51. Draw the nature of the graph in the following cases -

V-T

52. Draw the nature of the graph in the following cases -

V-T

53. Write the postulates of kinetic theory of gases.

54. Prove that at constant volume of a gas is directly propostional to its absolute temperature.

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55. What are the difference between vapour and gas?

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56. Explain the temperature and pressure of a gas according to the kinetic theory of gas?

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57. State the characteristics of gases.

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58. State Boyles law.

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59. State and explain Charles' law.

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60. How is absolute zero obtained from Charles law?

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61. Establish the combined law of Boyles and charles law?

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62. Write the postulates of kinetic theory of gases.

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63. At constant pressure, a fixed mass of a gas is heated form $0°C$ to $30°C$. Find the ratio of the volumes of the gas at $0°C$ and $30°C$.

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64. Volume of a gas at $27°C$ is 2 litre keeping pressure constant at what temperature does the volume of the gas become 3 litre?

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65. Volume of a gas at STP is 10 L. What will be the volume of the gas at $27°C$ and 750 mm pressure?

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Example

1. What is the value of normal temperature?

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2. What is the relation between pressure and density of a gas at constant temperature?

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3. In which instrument pressure can be measured?

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4. What is the value of absolute zero temp in fahrenheit scale?

5. What is the relation between kelvih scale

and Celsius scale?

6. What is the value of melting point of ice in

kelvin scale?

7. What is the value of Avogadro's number?

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8. What is torr?

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9. What is the full form of SATP.

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10. What is the value of bar in $dy \neq /cm^2$ unit.

11. Under what conditions is Boyle's law is applicable?

12. What is the value of gas constant in S.L units?

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13. Which is greater 30^C or 300 K?

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14. What are the constants of Boyle's law?

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15. A gas.initially at $0°C$ is heated so that its pressure and.volume are both doubled. What will be its final temperature?

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16. All gases known so far are ideal gases.

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17. No deviation from avogadros law is observed in case of real gases.

18. The universal gas constent depends upon the nature of the gas.

19. The value of avagadros number is 6.022×10^{23}.

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