



CHEMISTRY

BOOKS - JNAN PUBLICATION

BHEAVIOUR OF GASES

Example

1.1 mmHg = ? ___ torr ?



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2. 1 atm = ? ___ cmHg.



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3. 1 atm = ? ___ mmHg.



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4. 1 Litre = ? ___ dm^3 .



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5. 1 litre = ? ___ cm^3



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6. What is the mathematical formula for Boyle's law?



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7. Write the Boyle's law equation.



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8. Write Charle's law equation



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9. Write ideal gas equation applying Charle's law.



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10. Write the mathematical relation between the pressure and density of a gas at constant temperature



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11. Write the mathematical expression for pressure law.



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12. Write the mathematical expression for ideal or perfect gas.



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13. Which equation is called the characteristic equation or equation of state of an ideal gas?



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14. What is value of molecular weight of oxygen?



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15. What is the value of molecular weight of hydrogen?



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16. Write the value of specific gas constant for hydrogen gas.



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17. Write the the value of specific gas constant for oxygen gas.



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18. Write the value of specific gas constant for carbon dioxide gas.



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19. State Boyle's law.



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20. What are the two constant quantities for Boyle's law?



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21. Draw the graph Pressure (P) and volume (V) at constant temperature.



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22. What is the relation between the pressure and density at a constant temperature.



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23. State Charle's law.



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24. Draw a graph between pressure (P) vs volume $\left(\frac{1}{V}\right)$ at constant temperature.



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25. Draw V vs T at constant pressure (P) for Charles law.





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26. State-Pressure law.



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27. Define-Partial law.



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28. State the law of partial pressure.





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29. Define-absolute zero of temperature.



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30. Define-absolute scale fo temperature.



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31. Draw a graph of pressure (P) vs temperature (t) at constant volume.



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32. What is an ideal gas? What do you mean by equation of state of an ideal gas?



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33. Establish the equation :

$$V_{-t} = V_0 \left(1 - \frac{t}{273} \right)$$



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34. Establish : $\frac{P}{T} =$ a constant for pressure law.



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35. Establish the relation $PV = KT$ for an ideal gas



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36. What is the general equation is obtained by combining Boyle's law and Charle's law. Define universal gas constant.



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37. Establish: Relation between the pressure, temperature and density of a gas.



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38. Why the absolute zero of temperature is called absolute?



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39. Explain the relation between pressure & volume of a gas-when the temperature is kept constant.



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40. Explain the relation between temperature and volume of gas- when the pressure is kept constant.



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41. Write four assumptions of kinetic theory of gases.



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42. Explain briefly the translational kinetic energy of a gas.



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43. State Avogadro's law:





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44. Establish Avogadro's law.



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45. Establish the relation : Dalton's law of partial pressure: $p = p_1 + p_2 + p_3 + \dots$



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46. Prove: $\frac{r_1}{r_2} = \sqrt{\frac{\rho_2}{\rho_1}}$ for Graham's law of diffusion.



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47. Prove: Ideal gas equation $\Rightarrow pV = nRT$



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48. A certain volume of the gas was found to be at a pressure of 1000mm of mercury. When

the pressure was decreased by 500mm the gas occupied a volume of 2000cm^3 Calculate the initial volume occupied by the gas if the change was done at a constant temperature??



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49. A given mass of gas occupies a volume of 200 ml at 310K. To what temperature must the gas be heated to make its final volume as 400 ml. Assume that the pressure of the gas remains constant.



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50. A certain volume of the gas is kept as 200K. When the temperatures is decreased by 330 K the gas occupies a volume of 660 ml. What was the initial volume of the gas?



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51. A gas is collected at a pressure of 95 cm of Hg and at a temperature of $50^{\circ}c$. So what temperature should it be cooled so that is

occupies a volume which is 80% of its original volume when the pressure of the gas is 90 cm of Hg.



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52. A vessel of volume 2000cm^3 contains 0.1 mol of oxygen and 0.2 mol of carbon dioxide. If the temperature of the mixture is 300K. Find its pressure.



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