**SUBJECT: CHEMISTRY**

**TIME: 45 MIN**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **TOTAL MARKS-60** | | **DATE:-4.5.2020**  **States of matter-PRACTICE SHEET-01** | | | | | | | | | | | | | | |
| 1. | | If the rms speed of a gaseous molecule is at a pressure atm, then what will be the rms speed at a pressure atm and constant temperature? | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) |  | |
| 2. | | A litre cylinder containing gas at and is found to develop a leakage. When the leakage was repaired, the pressure dropped to of Hg at The number of mole of gas escaped out during leakage is: | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) |  | |
| 3. | | Avogadro’s number is the number of molecules present at NTP in: | | | | | | | | | | | | | | | | |
|  | | a) | | 1 mL of gas | | | | b) | 1 litre of gas | | | c) | 22.4 litre of gas | | | d) | 22.4 mL of gas | |
| 4. | | The ratio of rate of diffusion of helium and methane under identical conditions of pressure and temperature is: | | | | | | | | | | | | | | | | |
|  | | a) | | 4 | | | | b) | 2 | | | c) | 1 | | | d) |  | |
| 5. | | At what temperature will be rate of effusion of be times the rate of effusion of at | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) |  | |
| 6. | | When a sample of gas is compressed at constant temperature from 15 atm to 60 atm, its volume changes from. Which of the following statements are possible explanations of this behaviour?  1. The gas behaves non-ideally  2. The gas dimerises  3. The gas is absorbed into the vessel walls | | | | | | | | | | | | | | | | |
|  | | a) | | 1, 2, and 3 | | | | b) | 1 and 2 only | | | c) | 2 and 3 only | | | d) | 1 only | |
| 7. | | The root mean square velocity of a gas is double when the temperature is | | | | | | | | | | | | | | | | |
|  | | a) | | Increased four times | | | | | | | | b) | Increased two times | | | | | |
|  | | c) | | Reduced to half | | | | | | | | d) | Reduced to one fourth | | | | | |
| 8. | | A flask is of a capacity one . What volume of air will escape out from it on heating from to Assume pressure constant: | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) | None of these | |
| 9. | | Equal volumes of and are mixed. How will the volume of the mixture change after the reaction? | | | | | | | | | | | | | | | | |
|  | | a) | | Unchanged | | | | | | | | | | | | | | |
|  | | b) | | Reduced to half | | | | | | | | | | | | | | |
|  | | c) | | Increases two fold | | | | | | | | | | | | | | |
|  | | d) | | None of these | | | | | | | | | | | | | | |
| 10. | | If both gases are at the same temperature, the rate of diffusion of is very close to: | | | | | | | | | | | | | | | | |
|  | | a) | | 8 times that of He | | | | b) | times that of He | | | c) | 2 times that of He | | | d) | 4 times that of He | |
| 11. | | An ideal gas expands according to constant. On expansion, the temperature of gas: | | | | | | | | | | | | | | | | |
|  | | a) | | Will rise | | | | | | | | | | | | | | |
|  | | b) | | Will drop | | | | | | | | | | | | | | |
|  | | c) | | Will remain constant | | | | | | | | | | | | | | |
|  | | d) | | Cannot be determined because the external pressure is not known | | | | | | | | | | | | | | |
| 12. | | The temperature at which the second virial coefficient of a real gas is zero is called: | | | | | | | | | | | | | | | | |
|  | | a) | | Critical temperature | | | | b) | Eutectic point | | | c) | Boiling point | | | d) | Boyle’s temperature | |
| 13. | | Total energy of one mole of an ideal gas (monoatomic) at is: | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) |  | |
| 14. | | of one mole of He at is: | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) | None of these | |
| 15. | | At lower temperatures, all gases except and show: | | | | | | | | | | | | | | | | |
|  | | a) | | Negative deviation | | | | | | | | | | | | | | |
|  | | b) | | Positive deviation | | | | | | | | | | | | | | |
|  | | c) | | Positive and negative deviation | | | | | | | | | | | | | | |
|  | | d) | | None of the above | | | | | | | | | | | | | | |
| 16. | | For a real gas, deviations from ideal gas behaviourare maximum at: | | | | | | | | | | | | | | | | |
|  | | a) | | and atm | | | | b) | and atm | | | c) | and atm | | | d) | and atm | |
| 17. | | Effect of temperature on viscosity is given by | | | | | | | | | | | | | | | | |
|  | | a) | | Hole theory | | | | b) | Arrhenius theory | | | c) | Adsorption theory | | | d) | Collision theory | |
| 18. | | In a closed flask of 5 L, 1.0 g of is heated from 300 to 600 K. Which statement is not correct? | | | | | | | | | | | | | | | | |
|  | | a) | | Pressure of the gas increases | | | | | | | | b) | The rate of collision increases | | | | | |
|  | | c) | | The number of mole of gas increases | | | | | | | | d) | The energy of gaseous molecules increases | | | | | |
| 19. | | If latent heat of vaporization is at boiling point then entropy of vaporisation is | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) | None of these | |
| 20. | | Equal volumes of two gases are kept in separate containers at the same temperature and pressure. Then: | | | | | | | | | | | | | | | | |
|  | | a) | | Masses of the two gases are same | | | | | | | | | | | | | | |
|  | | b) | | Molecular structure of two gases would be similar | | | | | | | | | | | | | | |
|  | | c) | | The two gases contain the same number of molecules | | | | | | | | | | | | | | |
|  | | d) | | The two gases, if allowed to diffuse would do so at the same rate | | | | | | | | | | | | | | |
| 21. | | 300 mL of a gas at is cooled to at constant pressure. The final volume is | | | | | | | | | | | | | | | | |
|  | | a) | | 350 L | | | | b) | 270 mL | | | c) | 540 mL | | | d) | 135 mL | |
| 22. | | Which one of the following will give a linear plot at constant pressure? | | | | | | | | | | | | | | | | |
|  | | a) | |  | | | | b) |  | | | c) |  | | | d) | None of these | |
| 23. | | When gases are heated from to at constant pressure, the volume: | | | | | | | | | | | | | | | | |
|  | | a) | | Increase by the same magnitude | | | | | | | | | | | | | | |
|  | | b) | | Become double | | | | | | | | | | | | | | |
|  | | c) | | Increase in the ratio of their molecule masses | | | | | | | | | | | | | | |
|  | | d) | | Increase but to different extent | | | | | | | | | | | | | | |
| 24. | | In which one of the following does the given amount of chlorine exert the least pressure in a vessel of capacity | | | | | | | | | | | | | | | | |
|  | | a) | | 0.0355g | | | | | | | | b) | 0.071 | | | | | |
|  | | c) | |  | | | | | | | | d) | 0.02 moles | | | | | |
| 25. | | A bottle of dry ammonia and one of dry hydrogen chloride are connected through a long tube. The stoppers at both ends of the tube are opened simultaneously. The white ammonium chloride ring first formed will be | | | | | | | | | | | | | | | | |
|  | | a) | | At the centre of the tube b) Near the hydrogen chloride bottle | | | | | | | | | | | | | | |  | Near the hydrogen chloride bottle |
|  | | c) | | Near the ammonia bottle d) Throughout the length of the tube | | | | | | | | | | | | | | |  | Throughout the length of the tube |
| 26. | | . If pressure is increased | | | | | | | | | | | | | | | | |
|  | | a) | | Steam is liquefied | | | | | | | | b) | b.p. of is elevated | | | | | |
|  | | c) | | Both (a) and (b) | | | | | | | | d) | None of these | | | | | |
| 27. | | At NTP, of a gas weighs The vapour density of the gas is: | | | | | | | | | | | | | | | | |
|  | | a) | | 32 | | | | b) | 40 | | | c) | 16 | | | d) | 8 | |
| 28. | | Which of the following will increase with the increase in temperature? | | | | | | | | | | | | | | | | |
|  | | a) | | Surface tension | | | | b) | Viscosity | | | c) | Molality | | | d) | Vapour pressure | |
| 29. | | The condition of SATP refers for: | | | | | | | | | | | | | | | | |
|  | | a) | | and 2 atm | | | | b) | and 1 atm | | | c) | and 2 atm | | | d) | and 1 bar | |
| 30. | | The equation, | | | | | | | | | | | | | | | | |
|  | | a) | | Is equation for law of corresponding states. | | | | | | | | | | | | | | |
|  | | b) | | States that under similar conditions of reduced pressure and reduced temperature gases possess same reduced volume | | | | | | | | | | | | | | |
|  | | c) | | Provides better results at boiling point of two liquids | | | | | | | | | | | | | | |
|  | | d) | | All of the above | | | | | | | | | | | | | | |
|  | | a) | | Ether | b) | Acetaldehyde | | | c) | Acetic acid | | | d) | Ketone | | |