INDIAN SCHOOL NIZWA - WORKSHEET

CHEMISTRY

CH: 5 STATES OF MATTER Class: XI

1. Explain the various types of intermolecular forces.
2. State the following
   i) Boyle's law
   ii) Charle's law
   iii) Gay Lussac's law
3. Represent graphically Boyle's law , Charle's law and Gay Lussac's law and name the curve obtained.
4. What is an ideal gas?
5. State Dalton's law of partial pressures.
6. Write the ideal gas equation and combined gas law.
7. What is vander Wall's equation for real gases?
8. Define critical temperature. What are critical constants?
9. What are the conditions under which a real gas show ideal behavior?
10. Define compressibility factor. How is it related to ideal gases?
11. Define i) saturated vapour pressure ii) normal boiling point
    iii) standard boiling point.
12. What do you mean by the following? Give their units.
    i) surface tension ii) surface energy iii) coefficient of viscosity
13. What is meant by i) viscosity ii) laminar flow?
14. EXplain the effect of temperature on surface tension and viscosity?.
15. Give reason
    a) Temperature decreases with altitude. B) The size of the balloon becomes larger and larger when it ascends up into higher altitude.
16. If the number of moles of a gas is doubled by keeping the temperature and pressure constant, what will happen to the volume? This is in accordance with which gas law?
17. Why are vegetables cooked with difficulty at a hill station?
18. Compressibility factor is less than one. What does it denotes?

19. Why H_2 & He has Z >1?
20. Liquid NH_3 bottle is cooled before opening the seal. Explain.
21. Why are tyres of automobiles inflated to lesser pressure in summer than in winter?
22. The vander Waals constants for two gases are follows, Which of them will be easily liquefiable and which has greater molecular size?

Gas	a	b
X	1.39	0.0391
Y	3.59	0.0427

23. Crystalline solids are anisotropic in nature.What does this statement mean?
24. Zinc oxide on heating turns yellow. Why?
25. What type of stoichiometric effect is shown by AgCl?
26. Which stoichiometric effect increases the density of a solid?
27. Give an example of ionic solid which shows Frenkel defect.
28. Why does LiCl acquire pink colour when heated in Li vapours?
29. How are the following properties of crystals affected by Schottky and Frenkel defects?
    a) Density b) Electrical conductivity
30. In a mixed oxide of a compound, 1/8 th of tetrahedral voids are occupied by cations A, half of octahedral voids are occupied by cation B whereas oxide ions form cubic close packed structure, what will be the formula of oxide?
31. How would you account for the following?
    i) Impurity doped silicon is a semiconductor
    ii) Frenkel defects are not found in alkali metal halides.
    iii) Some of the very old glass objects appear slightly milky instead of being transparent.
32. What is meant by doping in a semiconductor?
33. What is meant by forbidden zone in reference to band theory of solids?
34. The density of copper metal is 8.95 g/ cm^3. If the radius of copper atom is 127.8 pm , is the copper unit cell a simple cubic or a bcc or a fcc structure?
    Given At mass of Cu = 63.54 gm/mol
35. Silver crystallizes in face centred cubic unit cells.Each side of unit cell has a length of 409 pm. What is the radius of silver atom?
36. Iron has a body centred cubic unit cell with a cell dimension of 286.65 pm. The density of iron is 7.874 g/ cm^3. Use this information to calculate Avagadro's number. Atomic mass of Fe = 55.845u.
37. An element has a body centred cubic (bcc) structure with a cell edge of 288 pm.The density of the element is 7.2 g/cm3. How many atoms are present in 208 g of the element?