

TELANGANA UNIVERSITY
S.S.R. DEGREE COLLEGE, NIZAMABAD (C.C:5029)
I SEMESTER INTERNAL ASSESSMENT II EXAMINATIONS
CHEMISTRY QUESTION BANK

I. Multiple choice questions.

1. Which of the following one is Heisenberg's uncertainty principle? [a]
 - a. $\Delta x \cdot \Delta p \geq \frac{h}{4\pi}$
 - b. $\Delta x \geq \frac{h}{4\pi}$
 - c. $\Delta x \cdot \Delta p < \frac{h}{6\pi}$
 - d. None
2. According to de Broglie-Hypothesis particles have which nature? [a]
 - a. Wave and particle
 - b. Wave nature
 - c. Particle nature
 - d. Quantum
3. Which of the following one is ideal gas equation? [c]
 - a. $V \propto \frac{1}{P}$
 - b. $V \propto T$
 - c. $PV = nRT$
 - d. $V \propto n$
4. The temperature below which gas is cooled when allowed to expand is known as []
 - a. Critical temp
 - b. Boyle's temp
 - c. Inversion temp
 - d. Ram temp
5. The temperature at which a real gas behaves like ideal gas [a]
 - a. Critical temp
 - b. Room temp
 - c. Boyle's
 - d. High temp
6. Ideal solution obeys _____ law [a]
 - a. Raoult's law and Henry's law
 - b. Boyle's law
 - c. $PV = nRT$
 - d. Joule's law
7. How many types of isomers [b]
 - a. One
 - b. Two
 - c. Three
 - d. Four
8. Which of the following one is used as Baeyer's bond angle strain theory [b]
 - a. $\frac{109^\circ - \alpha}{2}$
 - b. $\frac{109^\circ 28' - \alpha}{2}$
 - c. $\frac{180^\circ - \alpha}{2}$
 - d. $\frac{60^\circ - \alpha}{2}$
9. Identical groups on the same side of the "C=C" known as [a]
 - a. cis
 - b. Trans
 - c. Both
 - d. None
10. Which of the following one is the most stable conformer for cyclohexane []
 - a. Boat
 - b. Half boat
 - c. Chair
 - d. Twisted chair
11. How many symmetry elements are present in a crystal? [c]
 - a. One
 - b. Two
 - c. Three
 - d. Four
12. Crystalline solids exhibit [d]
 - a. Sharp mp
 - b. definite shape
 - c. Anisotropic
 - d. all
13. The repeating unit of a lattice is called [b]
 - a. Space lattice
 - b. Unit cell
 - c. Bravais lattice
 - d. None
14. How many Bravais lattices are present in the tetragonal system? [b]
 - a. One
 - b. Two
 - c. Three
 - d. Four
15. Bragg's equation [c]
 - a. $n\lambda = d \sin \theta$
 - b. $n = d \sin \theta$
 - c. $n\lambda = 2d \sin \theta$
 - d. None
16. Write Miller indices of a plane with intercepts $\frac{1}{2}a, \frac{3}{2}b, \frac{3}{2}c$ [a]
 - a. 3, 6, 2
 - b. 2, 1, 6
 - c. 1, 1/2, 3/2
 - d. 1, 2, 3
17. Total axes of symmetry in a cube are [d]
 - a. 6
 - b. 4
 - c. 3
 - d. 13
18. How many centers of symmetry are present in a crystal? [c]
 - a. 9
 - b. 13
 - c. 1
 - d. None
19. Planes of symmetry in a cube are of how many types? [b]
 - a. 1
 - b. 2
 - c. 3
 - d. 4
20. Interbond angle $\alpha =$ [a]
 - a. $\alpha = \frac{180(n-2)}{n}$
 - b. $\alpha = \frac{(n-2)}{n}$
 - c. $\frac{180 - (n-2)}{n}$
 - d. None

II. Fill in the blanks.

1. Raoult's law is $\frac{P^0 - P}{P^0} = X_B$

2. Henry's law = $m\alpha p$

3. Ideal gas equation = $PV = nRT$

4. Bayer's strain theory $d = \frac{109.28' - \alpha}{2}$

5. Planck's radiation law $\epsilon = h\nu$

6. De-broglie hypothesis $E = mc^2$

7. Heisenberg's uncertainty principle $\Delta x \cdot \Delta p \geq \frac{h}{4\pi}$

8. Vanderwaal's equation = $\left(P + \frac{a}{\sqrt{2}}\right)(v - b) = RT$

9. Co-ordination number of Na in NaCl is _____

10. Crystal lattice has 3 types of symmetry

11. The critical temperature of CO₂ is 31.1°C

12. The Vanderwaal's constant $V_c = 3b$

13. $P_c = \frac{a}{27b^2}$

14. $T_c = \frac{8a}{27bR}$

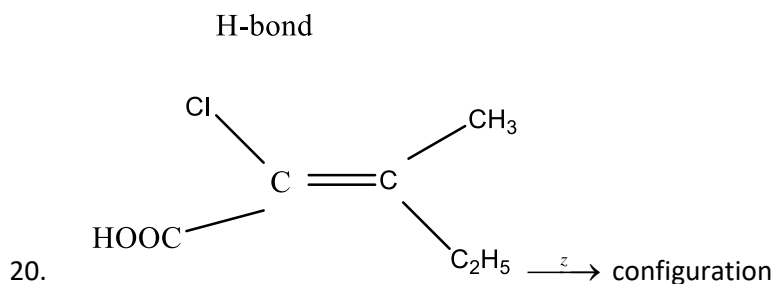
15. Example for Azeotropic solutions Ethanol + water

16. $K_{sp} = X^x \cdot Y^y \cdot S^{x+y}$

17. The stability order of n-butane conformational isomers staggered form > Gauche > Partially eclipsed > fully eclipsed

18. In 1,2 dichloro ethane 6 no. of conformational isomers possible.

19. Gauche form of 2-chloro ethanol contains Intra molecular H bond



III. Short Answers.

1. Write definition of photo electric effect?

A: A beam of light of sufficiently high frequency is allowed to strike metal surface. The electrons are ejected from the metal surface is called photo electric effect.

2. What is Heisenberg's uncertainty principle?

A: $\Delta X \cdot \Delta P \geq \frac{h}{4\pi}$

3. What is ideal gas?

A: The gas which obeys the ideal gas equation $pV = nRT$ at all temperature and pressure is known as ideal gas.

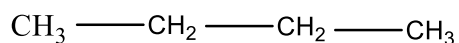
4. What is solubility product?

A: The product of the molar concentration of ions in a saturated solution of sparingly soluble salt at a given temperature is called solubility product.

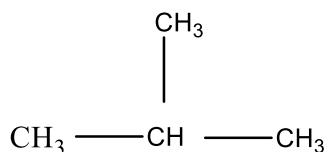
5. What is common ion effect?

A: The degree of ionization (α) of an electrolyte is suppressed by the addition of another electrolyte containing a common ion.

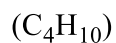
6. Give Examples for chain Isomers?



n-butane



Iso butane



A:

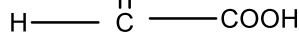
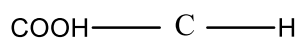
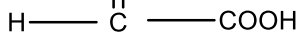
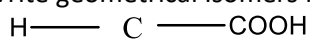
7. What is position Isomers?

A: Having same molecular formula, but differences in the position of the substituent's is called positional isomers.

8. What is Enantiomers?

A: Non-super imposable pairs of a compound and its mirror images are known as enantiomers.

9. Write geometrical Isomers for malic acid?



A:

cis malic acid

Trans maleic acid

10. According to Beyer's strain theory the stability order of cyclo alkanes is

