CLASS : XII **UNIT TEST -II** **TIME : 1.00 hr**
SUBJECT : CHEMISTRY **(SOLID STATE)** **MARKS : 40**

PART-I

CHOOSE THE CORRECT ANSWER : **10 X 1 = 10**

1.The fraction of total volume occupied by simple cubic is

a)$(\frac{\pi}{4})$ b)$(\frac{\pi}{6})$ c) $(\frac{\pi}{3})$ d) $(\frac{\pi}{8})$

2..The crystal with metal deficiency defect is

a)Nacl b)FeO c)ZnO d)Kcl

3. Graphite and diamond are

a) Covalent and molecular crystals b) ionic and covalent crystals

c) both covalent crystals d) both molecular crystals

4. Solid CO_2 is an example of

a) Covalent solid b) metallic solid c) molecular solid d) ionic solid

5. The vacant space in bcc lattice unit cell is

a) 48% b) 23% c) 32% d) 26%

6. The yellow colour in NaCl crystal is due to

a) excitation of electrons in F centers b) reflection of light from Cl- ion on the surface

c) refraction of light from Na+ ion d) all of the above

7. The cation leaves its normal position in the crystal and moves to some interstitial position, the defect in the crystal is known as

a) Schottky defect b) F center

c) Frenkel defect d) non-stoichiometric defect

8. The $\left(\frac{r_{C+}}{r_{A-}}\right)$ ratio of NaCl is

a) 0.155-0.225 b) 0.225-0.415 c) 0.414-0.732 d) 0.732-1.0

9. Which of the following is an example of hydrogen bonded molecular solid

a) $C_6H_{12}O_6$ b) Solid CO_2 c) naphthalene d) anthracene

10.Which one of the following is wrong ?

a) Cubic – $\alpha = \beta = \gamma = 90^0$ b) Orthorhombic - $\alpha = \beta = \gamma = 90^0$

c) Triclinic- $\alpha = \beta = \gamma \neq 90^0$ d) Monoclinic - $\alpha = \gamma = 90^0, \beta \neq 90^0$

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PART-II

ANSWER THE FOLLOWING ANY FOUR QUESTIONS. **4 X 2 = 8**

11. Define unit cell.
12. Define covalent solids
13. What are primitive and non primitive unit cell ?
14. sustantiate with suitable reason zinc oxide is colourless at room temperature and on heating it turns to yellow colour
15. calculate the number of atoms in FCC unit cell.
16. Write the Bragg's equation ? explain it terms

PART-II

ANSWER THE FOLLOWING ANY FOUR QUESTIONS. **4 X 3 = 12**

17. Why ionic crystals are hard and brittle?
18. What is meant by the term "coordination number"? What is the coordination number of atoms in a bcc structure?
19. Glassify the following into Covalent molecular ionic and metallic solids
    i) Diamond ii) brass iii) Nacl iv) Naphthalene v) glucose vi) P_4
20. Distinguish between isotropy and anisotropy in solids
21. Classify molecular crystal with an example for each type.
22. Calculate the packing efficiency of SC crystal lattice ?

PART-IV

ANSWER ALL THE QUESTION **2 X 5 = 10**

23.a) What are the difference between amorphous and crystalline solids?

(OR)

b) Distinguish between tetrahedral and octahedral voids ?

24. a) i) Write a note on Frenkel defect. (2 ½)
    ii) Write short note on Schottky defect (2 ½)

(OR)

b) i) Write any two general charctertistics solid ? (2)
   ii) Derive an expression for density of a crystal (3)

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