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Daily Practice Problems

NEET CHEMISTRY

Topic: Solid State

Q.1 Which of the following is not a characteristic of crystalline solids ?
(1) They have a regular geometry
(2) They have sharp melting points
(3) They are isotropic
(4) They undergo a clean cleavage

Q.2 Which of the following is not a crystalline solid ?
(1) Common salt (2) Sugar
(3) Iron (4) Rubber

Q.3 A pseudo solid is -
(1) glass (2) pitch
(3) KCl (4) Glass and pitch both

Q.4 Solid CO_2 is an example of -
(1) Ionic crystal (2) Covalent crystal (3) Metallic crystal (4) Molecular crystal

Q.5 Wax is an example of -
(1) Ionic crystal (2) Covalent crystal
(3) Molecular crystal (4) Metallic crystal

Q.6 The most unsymmetrical crystal system is -
(1) Cubic (2) Hexagonal (3) Triclinic (4) Orthorhombic

Q.7 Bravais lattices are of -
(1) 10 types (2) 8 types
(3) 7 types (4) 14 types

Q.8 In a simple cubic cell, each point on a corner is shared by -
(1) 2 unit cells (2) 1 unit cell (3) 8 unit cells (4) 4 unit cells

Q.9 In a face centred cubic cell, an atom at the corner contributes to the unit cell -
(1) 1 part (2) 1/2 part
(3) 1/4 part (4) 1/8 part

Q.10 In face centred cubic cell, an atom at the face centres is shared by -

(1) 4 units cells (2) 2 unit cells (3) One unit cell (4) 6 unit cells

Q.11 In a face centred cubic cell, an atom at the face contributes to the unit cell -

(1) 1 part (2) 1/2 part

(3) 1/4 part (4) 1/8 part

Q.12 In a body centred cubic cell, an atom at the body centre is shared by -

(1) 1 unit cell (2) 2 unit cell (3) 3 unit cell (4) 4 unit cell

Q.13 Which of the following type of cubic lattice has maximum number of atoms per unit cell ?

(1) Simple cubic

(2) Body centred cubic

(3) Face centred cubic

(4) All have same

Q.14 The number of atoms present in a unit cell of a monoatomic substance (element) of simple cubic lattice, body-centred cubic and face centred cubic respectively are -

(1) 8, 9 and 14 (2) 1, 2 and 4

(3) 4, 5 and 6 (4) 2, 3 and 5

Q.15 Which one of the following is primitive unit cell ?

(1) Simple cubic

(2) Body-centred cubic

(3) Face-centred cubic

(4) Both body-centred and face-centred cubic

Q.16 In a body centred cubic unit cell, a metal atom at the centre of the cell is surrounded by how many other metal atoms -

(1) 8 (2) 6 (3) 12 (4) 4

Q.17 An alloy of copper, silver and gold is found to have copper constituting the fcc lattice. If silver atoms occupy the edge centres and gold is present at body centre, the alloy has a formula -

(1) Cu_4Ag_2Au (2) Cu_4Ag_4Au (3) Cu_4Ag_3Au (4) CuAgAu

Q.18 Sodium metal crystallizes in bcc lattice with the cell edge a = 42.29 Å. What is the radius of sodium atom ?

(1) 1.86 Å (2) 1.90 Å

(3) 18.3 Å (4) 1.12 Å

Q.19 An element has bcc structure having unit cells 12.08×10^{23}. The number of atoms in these cell is -

(1) 12.08×10^{23} (2) 24.16×10^{23} (3) 48.38×10^{23} (4) 12.08×10^{22}

Q.20 A metal has bcc structure and the edge length of its unit cell is 3.04 Å.
The volume of the unit cell in cm^3 will be -
(1) 1.6×10^{-21} cm^3 (2) 2.81×10^{-23} cm^3 (3) 6.02×10^{-23} cm^3 (4) 6.6×10^{-24} cm^3

Q.21 A compound having bcc geometry has atomic mass 50.
Calculate the density of the unit cell, if its edge length is 290 pm -
(1) 6.81 g cm^{-3} (2) 3.40 g cm^{-3} (3) 13.62 g cm^{-3} (4) None of these

Q.22 An element, density 6.8 g cm^{-3} occurs in bcc structure with cell edge 290 pm.
Calculate the number of atoms present in 200 g of the element.
(1) 2.4×10^{42} (2) 1.2×10^{42}
(3) 1.2×10^{24} (4) 2.4×10^{24}

Q.23 An element A crystallizes in fcc structure. 200 g of this element has 4.12×10^{24} atoms.
The density of A is 7.2 g cm^{-3} Calculate the edge length of the unit cell -
(1) 26.97×10^{-24} cm (2) 299.9 pm
(3) 5×12^{-12} cm (4) 2.99 cm

Q.24 The more efficient mode of packing of identical atoms in one layer is -
(1) Square close packing pattern
(2) Hexagonal close packing pattern
(3) Both (1) and (2)
(4) None of the two

Q.25 The ABAB….packing and ABC ABC….packing are respectively called as -
(1) hexagonal close packing(hcp) and cubic close packing (ccp)
(2) ccp and hcp
(3) body centred cubic (bcc) packing and hexagonal close packing
(4) hcp and bcc

Q.26 The space occupied in bcc arrangement is -
(1) 74 % (2) 70 % (3) 68 % (4) 60.4 %

Q.27 The vacant space in bcc unit cell is -
(1) 32% (2) 10% (3) 23% (4) 46%

Q.28 The empty space in the hcp and ccp is about -
(1) 26 % (2) 30 % (3) 35 % (4) 40%

Q.29 Which one of the following is not a close packing ?
(1) hcp (2) ccp (3) bcc (4) fcc

Q.30 Close packing is maximum in the crystal lattice of -
(1) Simple cubic (2) Face centred (3) Body centred (4) None

ANSWER KEY

Que.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Ans.	3	4	4	4	3	3	4	3	4	2
Que.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ans.	2	1	3	2	1	1	3	3	2	2
Que.	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Ans.	1	4	2	2	1	3	1	1	3	2