SHIKSHA CLASSES

| Subject : Chemistry | BOARD QUESTION PAPER | Total Marks : 20 |
| Class : XII | Topic: 1. Solid State | Time : 1 Hr. |

Section A

Q.1 : **Select and write the most appropriate answer from given alternatives in each sub-question.** **5**

i) In close pack array of N spheres, the number of tetrahedral holes are ....

a) 4N b) N/2 c) 2N d) N

ii) The packing efficiency in simple cubic unit cell is

a) 52.4 % b) 68 % c) 74 % d) 80 %

iii) In the unit cell of NaCl lattice there are

a) $3Na^+$ ion b) $6 Na^+$ ion c) $6 Cl^-$ ion d) 4 NaCl units

iv) Schottky defect is notice in

a) NaCl b) KCl c) CsCl d) All of these

v) _____ is a crystalline's basic repetitive structural unit.

a) Monomer b) Molecule c) Unit cell d) Atom

Q.2 : **Very short answer type Question.** **2**

i) What is unit cell?

ii) How many tetrahedral voids present in crystal containing 'N' atoms?

Section B

Attempt any THREE. **6**

Q.3 : Explain molecular solid with example.

Q.4 : Explain properties of metallic crystal?

Q.5 : Draw the diagram of body centered cubic lattice and face centered cubic lattice.

Q.6 : Explain conduction band and valence band?

Section C

Attempt any one of following.   **3**

Q.7 : Predict the number of atoms per unit cell in face centered cubic lattice and simple cubic lattice.

Q.8 : Explain number of partical in cubic unit cell.

Section D

Attempt any one.   **4**

Q.9 : i)Atoms C and D form FCC crystalline structure. Atom C is present at corners of cube in which one atom missing from its position and D is at face centered of cube. What is formula of cube?

ii) Calculate percentage of space occupied and voids in body centered unit cell.

Q.10 : i)A compound is forms by two element A and B. The atom of element B form ccp structure. The atom of A occupy $\frac{1}{3}^{rd}$ of tetrahedral voids. What is the formula of compound?

ii) What are semiconductors ? How p-type semiconductors are develop.

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