

PYQSide

NEET SOLID STATE — CRYSTAL LATTICES & UNIT CELLS — PYQS

Max. Marks: 52

Questions: 13

Section A (MCQ)

Q.1 The correct option for the number of body centred unit cells in all 14 types of Bravais lattice unit cells is :

[NEET (UG) 2021]

- (1) 3 (2) 7 (3) 5 (4) 2

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Q.2 An element has a body centered cubic (bcc) structure with a cell edge of 288 pm. The atomic radius is :

[NEET (UG) 2020]

- (1) $\frac{\sqrt{2}}{4} \times 288$ pm (2) $\frac{4}{\sqrt{3}} \times 288$ pm
(3) $\frac{4}{\sqrt{2}} \times 288$ pm (4) $\frac{\sqrt{3}}{4} \times 288$ pm

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Q.3 A compound is formed by cation C and anion A. The anions form hexagonal close packed (hcp) lattice and the cations occupy 75% of octahedral voids. The formula of the compound is :

[NEET (UG) 2019]

- (1) C_3A_4 (2) C_4A_3 (3) C_2A_3 (4) C_3A

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Q.4 If a is the length of the side of a cube, the distance between the body centered atom and one corner atom in the cube will be

[AIPMT 2014]

- (1) $\frac{2}{\sqrt{3}}a$ (2) $\frac{4}{\sqrt{3}}a$ (3) $\frac{\sqrt{3}}{4}a$ (4) $\frac{\sqrt{3}}{2}a$

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Q.5 The number of carbon atoms per unit cell of diamond unit cell is

[NEET 2013]

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

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Q.6 In a face-centered cubic lattice, a unit cell is shared equally by how many unit cells?

[AIPMT 2005]

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

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Q.7 AB crystallizes in a body centred cubic lattice with edge length ' a ' equal to 387 pm. The distance between two oppositely charged ions in the lattice is

[AIPMT 2010 (Prelims)]

- (1) 335 pm (2) 250 pm (3) 200 pm (4) 300 pm

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Q.8 For a cubic crystal structure which one of the following relations indicating the cell characteristics is correct?

[AIPMT 2007]

- (1) $a \neq b \neq c$ and $\alpha = \beta = \gamma = 90^\circ$
(2) $a = b = c$ and $\alpha \neq \beta \neq \gamma = 90^\circ$
(3) $a = b = c$ and $\alpha = \beta = \gamma = 90^\circ$
(4) $a \neq b \neq c$ and $\alpha \neq \beta$ and $\gamma = 90^\circ$

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Q.9 A compound formed by elements X and Y crystallizes in a cubic structure in which the X atoms are at the corners of a cube and the Y atoms are at the face-centers. The formula of the compound is :-

[AIPMT 2004]

- (1) XY_3 (2) X_3Y (3) XY (4) XY_2

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Q.10 Number of atoms per unit cell in B.C.C. is

[AIPMT 2002]

- (1) 9 (2) 4 (3) 2 (4) 1

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Q.11 The cations and anions are arranged in alternate form in

[AIPMT 2000]

- (1) metallic crystal (2) ionic crystal
(3) covalent crystal (4) semi-conductor crystal

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Q.12 Cations and anions combine in a crystal to form the following type of compound

[AIPMT 2000]

- (1) ionic (2) metallic
(3) covalent (4) dipole-dipole

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Q.13 In a cubic crystal, A-atoms are placed at every corner and B-atoms at the centre of every face. The formula of the compound is [AIPMT 2000]

- (1) AB (2) AB₃ (3) A₂B₂ (4) A₂B₃

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full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	1	4	1	4	4	3	1	3	1	3	2
Ques.	12	13									
Ans.	1	2									