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NPTEL

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Courses » Solid State Chemistry

Announcements

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## Unit 13 - Week 10 : Common Crystal Structures

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Certification exam

### Course outline

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Systems, Point  
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Week 7 :  
Coordination  
number, voids,  
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crystals

### Assignment 10

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2019-04-10, 23:59 IST.**  
assignment.

1) Of the compounds given below, the one that is usually found in hexagonal system is **1 point**

ZnS

GaN

CaF<sub>2</sub>

Na<sub>2</sub>O

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*GaN*

2) The crystal structure of CaF<sub>2</sub> is **1 point**

ccp cations with anions in tetrahedral voids

ccp anions with cations in tetrahedral voids

hcp cations with anions in octahedral voids

hcp cations with anions in tetrahedral voids

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*ccp cations with anions in tetrahedral voids*

3) In the rock salt structure, the number of cations closest to another cation is **1 point**

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## Diffraction

**Week 9 : X - Ray  
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- Lecture 46 :  
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Theory of  
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Session****Week 12 :  
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4) Of the following structures below, the one that can be described as hcp anions with cations in octahedral voids is **1 point**

- GaN
- CsCl
- NiAs
- None of the other choices

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

NiAs

5)

**1 point**

Consider a cubic CsCl unit cell of side  $a$ . The nearest distance between a Cs<sup>+</sup> ion and a Cl<sup>-</sup> ion is



- $a/2$
- $a/\sqrt{2}$
- $a\sqrt{3}/2$
- None of the other choices

No, the answer is incorrect.

Score: 0

Accepted Answers:

$a\sqrt{3}/2$

- 6) Consider the Zinc blende structure. The coordination polyhedra of this structure about a cation is a/an

1 point

- tetrahedron
- octahedron
- distorted octahedron
- none of the other choices

No, the answer is incorrect.

Score: 0

Accepted Answers:

tetrahedron

- 7) The element that crystallizes in a simple cubic structure is

1 point

- Ni
- Fe
- C
- Po

No, the answer is incorrect.

Score: 0

Accepted Answers:

Po

- 8) If  $a$  is the nearest distance between Ga ions in GaN and we assume an ideal wurtzite structure for GaN, the nearest distance between Ga and N ions is equal to

1 point

- $a/2$
- $a\sqrt{3}/2$
- $a\sqrt{2}/2$
- $a\sqrt{3}/8$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$a\sqrt{3}/8$

If the distance between two nearest neighbor zinc ions in ZnS is  $a$ , then the nearest distance between

9) a zinc and a sulphide ion is

1 point

$$a\sqrt{3}/4$$

$$a\sqrt{3}/2$$

$$a\sqrt{3}/2$$

None of the other choices

No, the answer is incorrect.

Score: 0

Accepted Answers:

None of the other choices

10) Consider the  $\text{Na}_2\text{O}$  crystal for which the distance between two nearest neighbor oxide ions is  $a$ . The distance between two nearest neighbor Na ions is

1 point

$$a$$

$$a/2$$

$$a\sqrt{2}$$

$$a/\sqrt{2}$$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$$a/\sqrt{2}$$

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