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Unit 9 - Week 7 : Coordination number, voids, defects in crystals

Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-03-20, 23:59 IST.**

1) The cubic close packed and hexagonal close packed structures have, respectively, coordination numbers of *1 point*

- 12 and 6
- 12 and 12
- 6 and 6
- 8 and 12

No, the answer is incorrect.
Score: 0

Accepted Answers:
12 and 12

2) The number of atoms of Cs atoms closest to a particular Cs atom in CsCl is *1 point*

- 6
- 8
- 10

No, the answer is incorrect.
Score: 0

Accepted Answers:
6

3) The ratio of the radius of the tetrahedral void to that of the octahedral void in a monatomic FCC crystal is closest to *1 point*

- 0.23
- 0.41
- 0.53

0.31
0.40
0.48
0.52

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.52

5) ***1 point***

The octahedral void in a perfect monatomic bcc lattice is

- a distorted octahedral void located at the face centers of the cube
- a perfect octahedral void located at the face centers of the cube
- a distorted octahedral void located at the edge centers of the cube
- a perfect octahedral void located at the edge centers of the cube

No, the answer is incorrect.
Score: 0

Accepted Answers:
a distorted octahedral void located at the face centers of the cube

6) Of the following defects, the one that is a planar defect is a **1 point**

- screw dislocation
- edge dislocation
- disclination
- grain boundary

No, the answer is incorrect.
Score: 0

Accepted Answers:
grain boundary

7) The defects that lead to plastic deformation of materials are **1 point**

- voids
- disclinations
- dislocations
- grain boundaries

No, the answer is incorrect.
Score: 0

Accepted Answers:
dislocations

8) The number of states of a system with N particles having m noninteracting vacancies is **1 point**

- $N!$
- $\frac{N!}{m!}$
- $\frac{N!}{m!(N-m)!}$
- None of the above choices

No, the answer is incorrect.
Score: 0

Accepted Answers:

$\frac{N!}{m!(N-m)!}$

9) The enthalpy of Schottky defect formation in LiBr is 1.86 eV and that of Frenkel defects in AgCl is 1.54 eV. Let f_{LiBr} and f_{AgCl} denote the fraction of defects at 500K to that at 300K. The value of f_{LiBr}/f_{AgCl} is closest to **1 point**

- 1003
- 1.2
- 59.4
- 11.2

No, the answer is incorrect.
Score: 0

Accepted Answers:
11.2

10) The enthalpy of Schottky defect formation in MgO is 6.60 eV. The natural logarithm of the ratio of the number of defects at 1000K to that at 300K is closest to **1 point**

- 11
- 43
- 88
- 546

No, the answer is incorrect.
Score: 0

Accepted Answers:
88

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