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NPTEL

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Courses » Symmetry and Structure in the Solid State

Announcements **Course** Ask a Question Progress FAQ

Unit 13 - Bragg's Law in Reciprocal Space

Register for
Certification exam

Course outline

How to access
the portal

Basics of
Symmetry 1 :
Generation of
Point Groups

Basics of
Symmetry 2:
Detailed
Understanding
of 32 Point
Groups

Assignment of
Point Groups to
Crystal Systems
and Bravais
Lattice

Basics of
Symmetry 4:
Space Group
Description And
Introduction to
the International
Tables of
Crystallography(ITC-
Vol. A).

Correlation
Between
Symmetry
Diagrams and

Week 9 - Assignment 9

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2019-04-03, 23:59 IST.**

1) What is the radius of Ewald sphere? **2 points**

- $1/\lambda$
 $3/\lambda$
 $2/\lambda$
 $4/\lambda$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$1/\lambda$

2) What is the radius of limiting sphere? **2 points**

- $2/2\lambda$
 $4/\lambda$
 $2/\lambda$
 $4/\lambda$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$2/\lambda$

3) Find out the total number of possible reflections for a cubic crystal with $a=10\text{\AA}$ by using a wavelength $\lambda=1\text{\AA}$ **2 points**

- 4088
 4288

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Basics of X Ray Diffraction 1

Basics of X Ray Diffraction 2

Bragg's Law in Reciprocal Space

Diffraction and Reciprocal Space (Continued)

Limits of Resolution

Concept of Structure Factors

Systematic Absences 1

Systematic Absences 2

Quiz : Week 9 - Assignment 9

Structure Determination Methodologies 1

Structure Determination Methodologies 2

Powder Diffraction Method & Quantum Crystallography

4188

4) Find out total number of possible reflections in a limiting sphere of a tetragonal crystal with **2 points**
 $a=b=5\text{\AA}$ and $c=20\text{\AA}$ by using a wavelength $\lambda=2\text{\AA}$.

- 1094
 2094
 3094
 262

No, the answer is incorrect.

Score: 0

Accepted Answers:

2094

5) A crystal has a set of reflections (1,1,1), (2,0,0), (2,2,0), (3,1,1) and (2,2,2) **2 points**
 observed from X-ray diffraction. Find out the lattice type.

- P
 I
 F
 C

No, the answer is incorrect.

Score: 0

Accepted Answers:

F

6) Identify the space group of a crystal from the reflections present **2 points**
 200, 020, 002, 400, 040, 004, 800, 060, 008

- $P2_12_12_1$
 Pbc
 $Pca2_1$
 $I2_12_12_1$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$P2_12_12_1$

7) Identify the space group from the reflection conditions **2 points**

$h0l: l = 2n$
 $0k0: k = 2n$

- Pc
 $P2_1$
 $P2_1/C$
 $C2/c$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$P2_1/C$

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