X

NPTEL

Courses » Fundamentals of X-ray diffraction and Transmission electron microscopy

Announcements   **Course**   Ask a Question   Progress
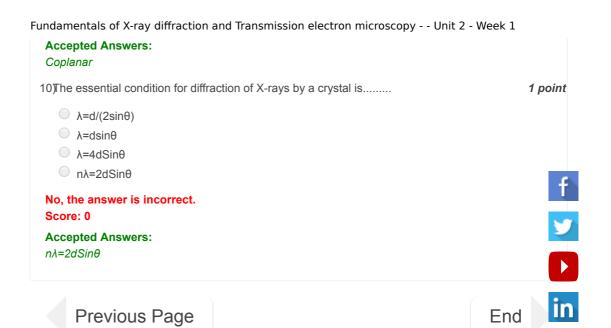
Unit 2 - Week 1

Course outline

How to access the portal

Week 1

○ Lecture 1 - Basics of X-ray emission from source, electron excitation and X-ray interaction with materials in general

○ Lecture 2 - Properties of X-rays

○ Lecture 3 - Bragg's law derivation

○ Quiz : Week 1 - Assignment

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 1 - Assignment

The due date for submitting this assignment has passed. **Due on 2016-07-31, 00:00 IST.**
As per our records you have not submitted this assignment.

1) Calculate the λ_{SWL} for molybdenum, when the accelerating potential is 15 kV   *1 point*

○ 0.83 nm

○ 0.083 nm

○ 0.0083 nm

○ 8.3 nm

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.083 nm

2) A _____ is composed of large number of scattered rays mutually reinforcing one another   *1 point*

○ Diffracted beam

○ Reflected beam

○ Refracted beam

○ Dispersed beam

No, the answer is incorrect.
Score: 0

Accepted Answers:
Diffracted beam

3) Bremsstrahlung interactions results in..........?   *1 point*

○ Characteristic radiations

○ Continuous spectrum

○ Diffraction

○ Refraction

No, the answer is incorrect.
Score: 0

Accepted Answers:
Continuous spectrum

4) The wavelength of an X-ray moving with the speed of light and having an energy of 10^8 eV is..........?   *1 point*

○ 12.43×10^{-15} m

○ 12.43×10^{-18} m

○ 1.243×10^{-15} m

○ 12.43×10^{-12} m

No, the answer is incorrect.
Score: 0

Accepted Answers:
12.43×10^{-15} m

5) What is the smallest d-spacing that can be measured for a given wavelength (λ)?   *1 point*

○ 0.05λ

○ 0.5λ

○ λ

○ 2λ

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.5λ

6) The phenomena of diffraction of X-rays by crystals were first discovered by.....   *1 point*

○ W.L. Bragg

○ W.H. Bragg

○ Max Van Laue

○ Sir Issac Newton

No, the answer is incorrect.
Score: 0

Accepted Answers:
Max Van Laue

7) The unit of mass absorption coefficient is.......?   *1 point*

○ Joules/kg

○ kg/m^2

○ m^2/kg

○ kg/m^3

No, the answer is incorrect.
Score: 0

Accepted Answers:
m^2/kg

8) Which among the following is not commonly used as an X-ray source in a diffractogram?   *1 point*

○ Copper

○ Molybdenum

○ LaB_6

○ Chromium

No, the answer is incorrect.
Score: 0

Accepted Answers:
LaB_6

9) The incident beam, normal to diffraction plane and diffracted beam are always........   *1 point*

○ Collinear

○ Convergent

○ Coplanar

○ Divergent

No, the answer is incorrect.
Score: 0

Accepted Answers:
Coplanar

10) The essential condition for diffraction of X-rays by a crystal is.........   *1 point*

- ○ $\lambda = d/(2\sin\theta)$
- ○ $\lambda = d\sin\theta$
- ○ $\lambda = 4d\operatorname{Sin}\theta$
- ○ $n\lambda = 2d\operatorname{Sin}\theta$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$n\lambda = 2d\operatorname{Sin}\theta$

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