Week 4 : Assignment 4

The due date for submitting this assignment has passed.

Due on 2021-09-01, 23:59 IST.

As per our records you have not submitted this assignment.

1) **Match the following:** *1 point*

A-Hexagonal crystal has 6-fold symmetry	1. 90° along the three 100 axes
B-Cubic crystal has 2-fold symmetry	2. 120° along the four 111 axes
C-Cubic crystal has 3-fold symmetry	3. 180° along the six 110 axes
D-Cubic crystal has 4-fold symmetry	4. 60° along the 0002 axes

(a) A-4, B-3, C-2, D-1
(b) A-3, B-2, C-1, D-4
(c) A-2, B-1, C-4, D-3
(d) A-1, B-4, C-3, D-2

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

2) Which of the following is not a Bravice Lattice? *1 point*

- (a) Body centred cubic
- (b) Base centred cubic
- (c) Base centred tetragonal
- (d) Body Cantered tetragonal

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) Base centred cubic
(c) Base centred tetragonal

3) **Match: The number of crystallographically related solutions of orientation matrix is** *1 point*

A. 4	1. For Cubic crystal symmetry
B. 12	2. For Orthorhombic crystal symmetry
C. 24	3. For Hexagonal crystal symmetry

(a) A-2, B-3, C-1, (b) A-3, B-1, C-2, (c) A-1, B-2, C-3, (d) A-2, B-1, C-3

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

4) **Find the $\varphi_1, \Phi, \varphi_2$ corresponding to the $\{110\}\langle 001\rangle$:** *1 point*

(a) 0°, 45°, 0°, (b) 90°, 90°, 45°, (c) 0°, 45°, 90°, (d) 90°, 45°, 0°

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
a
b
c

5) **Which of the sentences are true?** *1 point*

(a) Crystal orientations $\{hkl\}\langle uvw\rangle$ are related to Euler angles $\varphi_1, \Phi, \varphi_2$ and can be used to construct the Euler Space and thereby ODFs

(b) There are 24 crystallographically related solutions of orientation matrix for $(12\bar{3})[634]$, and each matrix holds a different position in Euler Space.

(c) All fibers along φ_1 are parallel to ND, and are known as ND-fibers.

(d) All fibers along Φ are parallel to RD and are known as RD-fibers.

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
a
b
c

6) The limitations of pole figure is/are: *1 point*

- (a) Specific crystallographic planes cannot be plotted.
- (b) An individual pole does not yield the entire orientation information, minimum 3 poles are needed to identify an orientation.
- (c) The orientation of the crystals must be described relative to other crystals.
- (d) Pole in the final plot for a polycrystalline material are not identified w.r.t. a particular crystal or grain.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) An individual pole does not yield the entire orientation information, minimum 3 poles are needed to identify an orientation.

7) The point groups or crystal classes includes *1 point*

- (a) Rotational symmetry
- (b) Mirror symmetry
- (c) Inversion symmetry
- (d) translational symmetry

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) Rotational symmetry
(b) Mirror symmetry
(c) Inversion symmetry

8) **Match the following:** *1 point*

A. 7	1. Space groups
B. 14	2. Laue classes or groups
C.11	3. Point groups
D. 32	4. Bravais Lattices
E. 230	5. Crystal systems

(a) A-5, B-4, C-3, D-2, E-1
(b) A-5, B-4, C-3, D-1, E-2
(c) A-5, B-4, C-1, D-2, E-3
(d) A-5, B-4, C-2, D-3, E-1

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
d

9) **Orthorhombic crystal structure has:** *1 point*

(a) four bravais lattices

(b) $a \neq b \neq c$

(c) $\alpha = \beta = \gamma = 90°$

(d) Four-fold symmetry

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
a
b
c

10) **Which one/s is/are true for orientation matrix:** *1 point*

(a) contains 9 independent variables

(b) cross product of two rows/columns gives the third

(c) For any row/column, the sum of square is unity

(d) $g^{-1} = g_T$

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0
Accepted Answers:
b
c
d