

# Unit 7 - Week 2

## Course outline

How does an NPTEL online course work?

MATLAB

MATLAB\_SCRIPTS

LAMMPS\_SCRIPTS

Installation\_Procedure

Week 1

Week 2

• Symmetry elements-2

• Plane groups and their Hermann-Mauguin (HM) symbols

◻ Glide reflection; Examples of writing point group symbols; Wyckoff positions

• Generating 2D crystal with MATLAB using Bilbao crystallography website

• Week 2 Lecture materials

◻ Quiz : Assignment 2

◻ Week 2 Feedback

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Additional Documents

Download videos

Text Transcripts

## Assignment 2

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

Due on 2020-02-12, 23:59 IST.

1) As per point group symmetry operations, which of the following pairs are **not** equivalent to each other ?

0 points

- $\bar{3}$  and  $(3 + \bar{1})$
- $\bar{4}$  and  $(4 + \bar{1})$
- $\bar{6}$  and  $\frac{4}{m}$
- $\bar{2}$  and m

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
4 and  $(4 + \bar{1})$

2) Which of the following is equivalent to a mirror plane?

2 points

- $\bar{4}$
- $\frac{4}{m}$
- $\bar{2}$
- $\bar{3}$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
2

3) Which of the following notation does not represent a hexagonal plane group?

2 points

- $p3$
- $p4$
- $p6m$
- $p6$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $p4$

4) Bravais lattice consists of a set of imaginary points?

2 points

- True
- False

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
True

5) A glide line always generate a centered lattice?

2 points

- True
- False

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
False

6) Fill in the blanks:

For plane lattices \_\_\_\_\_ number of Plane point groups.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 10

1 point

7) For plane lattices \_\_\_\_\_ number Plane plane groups can be possible.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 17

1 point

8) Carefully study the pattern in Fig. 1 and answer the following question.

2 points

The point group of the motif indicated by the dashed box is \_\_\_\_\_  
(Note that the motif which is generated by using several scalene triangles, is marked using a dashed box)

Figure 1:



- 6
- $6m$
- 3
- $4m$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
6

9) Fill in the blanks:

This pattern(Fig.below) belongs to the \_\_\_\_\_ plane group



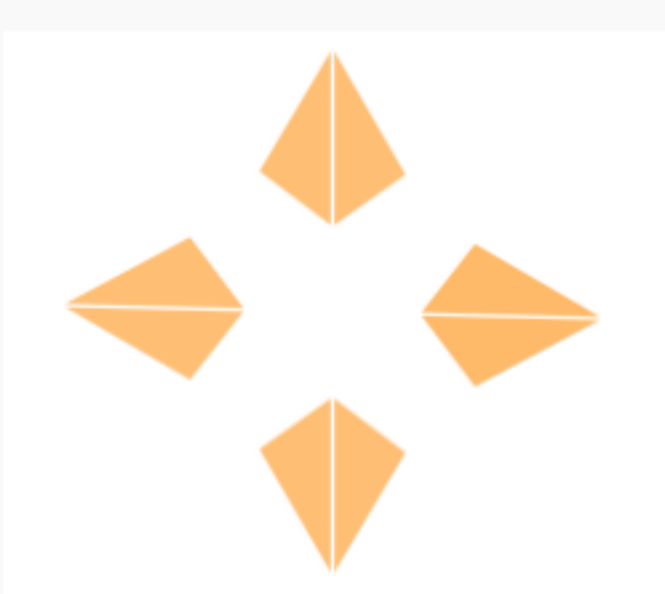

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String)  $p2mm$

2 points

10) The point group of the below pattern is

2 points



- 4
- $4mm$
- $\bar{3}$
- $4m$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $4mm$

11) \_\_\_\_\_ is the symbol for a four-fold rotation with screw axis involving a translation by  $\frac{1}{2}$  the lattice vector

2 points

- $4_2$
- $2_4$
- $3_2$
- $4_1$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $4_2$

12) Wyckoff positions give the position of all atoms inside the unit cell

2 points

- True
- False

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
True