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NPTEL

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Courses » Theory of groups for physics applications

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 1 - How to access the portal

Course outline

How to access the portal

- How to access the home page?
- How to access the course page?
- How to access the MCQ, MSQ and Programming assignments?
- Quiz : Week 0- Assignment 0-MCQ

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 0- Assignment 0-MCQ

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2018-07-30, 23:59 IST.**

1) The set of all positive real numbers along with the operation of addition is not a group because *1 point*

- Addition is not a binary operation.
- Addition is not associative
- Identity element does not exist
- Inverse element does not exist

No, the answer is incorrect.
Score: 0

Accepted Answers:
Inverse element does not exist

2) Which one of the following options is not a Point group operation? *1 point*

- Translation
- Rotation
- Reflection
- Inversion

No, the answer is incorrect.
Score: 0

Accepted Answers:
Translation

3) The Linear Vector Space (LVS) is considered as Complex or Real depending upon, *1 point*

- Vectors residing within LVS

No, the answer is incorrect.
Score: 0

Accepted Answers:
Scalars belong to $\mathbb{C}$ (complex numbers)

4) Find the $\{q^2p, p^2q\}_{PB}$, where PB refers to the Poisson Bracket with respect to (q, p). ***1 point***

- $-3p^2q^2$
- $3pq^2$
- $3p^2q$
- $3p^2q^2$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$3p^2q^2$

5) The number of elements in the cyclic group $\mathcal{C}_n$ is ***1 point***

- n
- $2n$
- 1
- infinite

No, the answer is incorrect.
Score: 0

Accepted Answers:
n

6) The operation of reflection in the $x-y$ plane denoted by σ_{xy} can be written as matrix representation in the form (when the basis is considered as $\begin{pmatrix} x \\ y \\ z \end{pmatrix}$) ***1 point***

- $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix}$
- $\begin{pmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$
- $\begin{pmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$
- $\begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix}$$

7) The 1s orbital of Hydrogen atom has the symmetry axis ***1 point***

- C_6
- C_3
- C_2
- C_∞

No, the answer is incorrect.
Score: 0

Accepted Answers:
C_∞

8) Every motion of a rigid body is equivalent to, ***1 point***

- Only translation of the center of mass (CM) by a vector.
- Only rotation about some axis $\hat{n}$ by angle θ.
- Both a translation of the CM by a vector and a rotation about some axis $\hat{n}$ by angle θ.
- None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Both a translation of the CM by a vector and a rotation about some axis $\hat{n}$ by angle θ.

9) A set whose (points) elements can be put in one-one correspondence with natural numbers upto a specific number N is called ***1 point***

- enumerable set
- denumerable set
- compact set
- densed set

No, the answer is incorrect.
Score: 0

Accepted Answers:
enumerable set

10) The group of one dimensional translations is ***1 point***

- a compact group
- a non-compact group
- a discrete group
- a non-abelian group

No, the answer is incorrect.
Score: 0

Accepted Answers:
a non-compact group

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