

Unit 14 - Week 12

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Hamiltonian Mechanics: Poisson Bracket

Hamiltonian Mechanics: Canonical Coordinates

Hamiltonian Mechanics: Generating Function of Canonical Transformations

Hamiltonian Mechanics: Generating functions of the 4 kinds

Examples of Generating Functions

Harmonic Oscillator (Canonical Transformations)

Invariance of Poisson Brackets

Normal modes of triatomic molecule using Mathematica

Quiz : Assignment 12

Week 12 Feedback Form : Introduction to Classical Mechanics

Live session

Video Download

Assignment 12

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

Due on 2020-12-09, 23:59 IST.

1) The transformation

4 points

$$Q = p + iq, \quad P = \alpha(p - iq)$$

is canonical if $\alpha = \dots$

- $-i$
- $-i/2$
- i
- $2i$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $-i/2$

2) The transformation

4 points

$$Q = p/q, \quad P = \alpha q^2$$

is canonical if $\alpha = \dots$

- -1
- $-1/2$
- 1
- 2

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $-1/2$

3) Suppose A and B are vectors and M is a second rank tensor, then, which of the following are incorrect equations. (In all the equations below summation convention over repeated indices is implied.)

- $A_i = M_{ij}B_i$
- $A_i = M_{ii}B_i$
- $A_i = \epsilon_{ijk}B_i$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $A_i = M_{ij}B_i$
 $A_i = M_{ii}B_i$
 $A_i = \epsilon_{ijk}B_i$

4) Two tensors Γ_{ijkl} and Ω_{ijkl} are combined in the following manner to form a new tensor:

1 point

$$\Gamma_{ijkl}\delta_{lq}\Omega_{qmn}p.$$

The rank of the above tensor is

- 10
- 8
- 7
- 6

No, the answer is incorrect.
Score: 0

Accepted Answers:
6