

Course :- B.Sc. Physics (H)
Paper :- GE - Mechanics
Sem :- I
Year :- 2023-2024
Teacher :- Ms. Nitu Verma
Duration of Test :- 1 hour
Date :- 06-11-2023

max. marks → 10

Questions

Q1 $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - 3y = 2e^{2x} + 10\sin 3x$ given
that $y(0) = 2$ and $y'(0) = 4$

→ (5 marks)

Q2 Two β particles A and B emitted by a radioactive source travel in opposite directions each with a velocity of $0.9c$ with respect to the source. Find the velocity of B with respect to A.
→ (2) marks.

Q3 Determine the constant a so that the following vector is solenoidal :-

$$\mathbf{V} = (-4x - 6y + 3z)\hat{i} + (-2x + y - 5z)\hat{j} + (5x + 6y + az)\hat{k}$$

→ (1) mark

Q4 (i) What is mean life of a burst of π^+ mesons, travelling with $\beta = 0.73$? (The proper mean life time τ is 2.5×10^{-8} sec.)

(ii) what distance is travelled at $\beta = 0.73$
during one mean life?

→ (2) marks

Natu Verma

Ms. Natu Verma

Assistant Professor

Physics Department
Shiraji College

Attendance Sheet
Class . Test (06 / 11 / 2023)

1. Bhupinderjit

23/10028

① Bh

2. Priya

23/10017

① Priya

3. Khushal

23/10014

① Khushal

4. Abha

23/23066

① Abha

Prateek Verma