COMSATS University Islamabad

Attock Campus

Department of Mathematics

Assignment # 02

Class: BSM-IV
Subject: Introductory Quantum Mechanics
Instructor: Dr. Atiq ur Rehman

Due Date: 9-10-2023
Course Code: MTH408
Marks: 9

Note: *Please follow the due date & time strictly. You can submit a hard copy or email PDF of your assignment at atiq+mth408@cuiatk.edu.pk. Please don't send via WhatsApp.*

Question # 1:

Let $x(t)=t^3+2\sin t$ represents some distance function at point t.

a. Find the velocity and acceleration at time t.

b. Find the velocity at time 5sec.

c. Find acceleration at $t=\frac{\pi}{6}$ sec.

d. What is the kinetic energy at time 2.5sec if mass is 52kg.

Question # 2:

Suppose an electric train start its journey from zero to the velocity function $v(t)=t^2+te^t$.

a. Find the distance traveled by the train in KM after 5mints.

b. Find the velocity of train after one hours.

c. Find the momentum of the train just after 5 seconds if weight of the train is 100 tons.

Academic Honesty Requirements:

You are encouraged to work with others in the completion of assignments, but it doesn't include copying. Academic integrity is an ethical code, whereby the student guarantees that all work submitted is the student's own work. For this purpose, please include the following statement with every submitted assignment on title page:

I worked on this homework myself, and I understand it.