National University

of Computer & Emerging Sciences Peshawar Campus

Name: _____ Roll No:

Program: BCS/BAI/BSE
Semester: Fall – 2023
Time Allowed: 1hour
Course: NS1001 Applied Physics/Physics for engineers

Examination: Midterm 1
Total Marks: 15 Weightage: 15
Date: Sept 25, 2023
Instructor: Engr M Asif Khan

NOTE: Attempt all questions

Question 1 [5M]

The position of a particle moving along the x-axis varies in time according to the expression $x=3t^2$, where x is in meters and t is in seconds. Evaluate its:

a. Position at t=3s
b. Position at t = 3s+Δt
c. Velocity at t=3s

Question 2 [5M]

A jet plane comes in for a landing with a speed of 100m/s and its acceleration can have a maximum magnitude of $5m/s^2$ as it comes to rest.

a. From the instant the plane touches the runway, what is the minimum time interval needed before it can come to rest.
b. Can this plane land on a small tropical island airport where the runway is 0.900km long? Justify your answer with proper mathematical derivation.

Question 3 [5M]

For fig1 draw the acceleration-time graph.

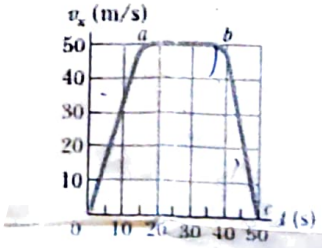

Fig1

THE END