

Physics

Midterm Exam Outline

2022/2023

Format

60 Multiple Choice (60% - 1 Point Each)

8 Problems (40% - 5 Points Each)

Midterm exam includes the following topics:

Chapter 1: The Science of Physics

What is Physics

Areas/Branches of Physics

The Scientific Method

Hypothesis, Models and Experimental Design

Standards, Base Units and SI Prefixes

Mathematics: The Language of Physics

Data Analysis: Tables, Graphs and Equations

Chapter 2: 1D Kinematics – Motion in One Dimension

Frames of Reference

Interpreting Dot/Oil Drop Patterns

Displacement, Velocity and Acceleration (Defining and Formula Application)

Speeding Up/Slowing Down (Comparing Directions of Velocity and Acceleration)

Distinguishing Between Average and Instantaneous Velocity and Acceleration

Describing Motion from Interpreting x , v and a Graphs (Slope and Area)

Constructing or Interpreting Motion Diagrams

Free-Fall and Galileo's Laws

Applying Kinematic Equations of Motion

Chapter 3: 2D Kinematics – Vectors and Projectiles

Defining and Distinguishing Scalar and Vector Quantities

Syntax for Representing Vector Quantities

Resultant Vector (Vector Addition)

Vector Properties: Commutative Property

Vector Components (Resolving Vectors into Parts)

Projectile Motion (Features and Applying Motion Equations)

Problems

Covers the following topics:

Problem 1 – Measurements in Experiments (Metric Prefixes)

Application of Conversion Methods

Problem 2 – One-Dimensional Kinematics (Displacement and Velocity)

Application of General Motion Equations

Problem 3 – One-Dimensional Kinematics (Acceleration)

Application of General Motion Equations

Problem 4 – One-Dimensional Kinematics (Free-Fall)

Application of Kinematic Equations

Problem 5 – One-Dimensional Kinematics (Interpreting Motion Graphs)

Application of Kinematic Principles and Graphical Techniques

Problem 6 – Vectors (Addition)

Application of Composition for Finding Resultants

Problem 7 – Vectors (Parts)

Application of Resolution for Finding Components

Problem 8 – 2D Kinematics (Horizontal Projectiles)

Application of Projectile Principles and Kinematic Equations