Question Paper

Topic 1: Mechanics

Q1. What is the difference between speed and velocity in terms of mechanics?
Answer: Speed is a scalar quantity representing how fast an object is moving, while velocity is a vector quantity that includes both speed and direction of motion.
Explanation: Speed is the rate of change of distance with time, while velocity includes the direction of motion along with speed.

Q2. Explain the concept of acceleration and provide an example related to mechanics.
Answer: Acceleration is the rate of change of velocity with time. For example, when a car speeds up from rest to a certain velocity, it undergoes acceleration.
Explanation: Acceleration can be positive (speeding up), negative (slowing down), or changing direction (centripetal acceleration). It is a crucial concept in mechanics to understand how objects change their motion.