Assignment 6

Due on 2020-05-11, 23:59 IST

For this assignment, you have successfully submitted successfully.

Section 1: Question 1

The net force on a particle is given by the equation:

\[ F = ma \]

where \( F \) is the net force, \( m \) is the mass of the particle, and \( a \) is the acceleration.

The work done on the particle is given by the equation:

\[ W = \int F \, dx \]

where \( W \) is the work done, \( F \) is the force, and \( dx \) is the infinitesimal displacement.

Section 2: Question 2

A student is trying to solve a problem involving the calculation of the work done on a particle. The student is given the following information:

\[ F = 5 \, \text{N} \]

\[ a = 2 \, \text{m/s}^2 \]

\[ x = 3 \, \text{m} \]

The student needs to calculate the work done on the particle.

Section 3: Question 3

A physics experiment involves the measurement of the current flowing through a circuit.

\[ I = \frac{V}{R} \]

where \( I \) is the current, \( V \) is the voltage, and \( R \) is the resistance.

The student needs to determine the current flowing through the circuit.

Section 4: Question 4

A student is studying the electric field in a vacuum.

\[ E = \frac{F}{q} \]

where \( E \) is the electric field, \( F \) is the force on the charge, and \( q \) is the charge.

The student needs to calculate the electric field at a certain point.

Section 5: Question 5

A physics experiment involves the measurement of the magnetic field.

\[ B = \frac{F}{q \, v} \]

where \( B \) is the magnetic field, \( F \) is the force on the charge, \( q \) is the charge, and \( v \) is the velocity.

The student needs to determine the magnetic field at a certain point.

Section 6: Question 6

A student is studying the mechanical energy in a system.

\[ K + U = \frac{1}{2} mv^2 + mgh \]

where \( K \) is the kinetic energy, \( U \) is the potential energy, \( m \) is the mass, \( v \) is the velocity, and \( g \) is the acceleration due to gravity.

The student needs to calculate the mechanical energy of the system.

Section 7: Question 7

A physics experiment involves the measurement of the energy in a system.

\[ E = \int p \, dp \]

where \( E \) is the energy, \( p \) is the momentum, and \( dp \) is the infinitesimal change in momentum.

The student needs to determine the energy in the system.

Section 8: Question 8

A student is studying the wave properties in a medium.

\[ E = \frac{1}{2} k \, a^2 \]

where \( E \) is the energy, \( k \) is the wave number, and \( a \) is the amplitude.

The student needs to calculate the energy of the wave.