APPLIED PHYSICS

Due Date: 3rd November, 2022 before 4:30pm

Sections: 1F

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***Note**: Plagiarism is NOT allowed. Copied assignment will get NEGATIVE MARKS for both source and destination*

Q1: The equation of a transverse wave traveling along a very long string is $y = 6.0 \sin (0.020\pi x + 4.0\pi t)$, where x and y are expressed in centimeters and t is in seconds. Determine (a) the amplitude, (b) the wavelength, (c) the frequency, (d) the speed, (e) the direction of propagation of the wave, and (f) the maximum transverse speed of a particle in the string. (g) What is the transverse displacement at x = 3.5 cm when t = 0.26 s?

Q2: A wave has an angular frequency of 110 rad/s and a wavelength of 1.80 m. Calculate (a) the angular wave number and (b) the speed of the wave.

Q3: A particle of charge $+3.00 \times 10^{-6}$ C is 12.0 cm distant from a second particle of charge -1.50×10^{-6} C. Calculate the magnitude of the electrostatic force between the particles

Q4: What is the magnitude of a point charge that would create an electric field of 1.00 N/C at points 1.00 m away?

Q5: How many electrons would have to be removed from a coin to leave it with a charge of -1.0×10^{-7} C?