Assignment 11

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) A particle of charge q and mass m is placed in a uniform static electric field, then:
   a) particle's velocity remains constant with respect to time
   b) the total energy of the particle is conserved in this motion
   c) the work done by the electric field is zero in this motion
   d) all of the above
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 4

2) A charged particle moves in a uniform magnetic field. The velocity of the particle at some instant makes an acute angle with the magnetic field. The path of the particle will be:
   a) a circle
   b) a helix with uniform pitch
   c) a helix with non-uniform pitch
   d) all of the above
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

3) The momentum of an electron is negligible. A 1000-volt electron is moving in a magnetic field in the x-y plane. The velocity of the electron is 10^4 m/s. Which of the following statements is correct?
   a) The electron experiences a deflecting force in the y-direction.
   b) The electron experiences a deflecting force in the x-direction.
   c) The electron experiences a deflecting force in both x and y-directions.
   d) The electron experiences no deflecting force.
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

4) A solar wind proton with streaming velocity 300 km/s in a magnetic field of B = 5x10^-11 T has a proton mass
   a) 1200 km
   b) 1800 km
   c) 600 km
   d) 180 km
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

5) An ion engine has a core Tesla magnetic field, and a hydrogen plasma to be shot out at a 0.010 cm/s velocity of 1000 km/s. How much external electric field must be present in the plasma? (Electric and magnetic fields are perpendicular to each other)
   a) 10^5 V/m
   b) 10^6 V/m
   c) 10^5 V/m
   d) 10^7 V/m
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

6) The McFadden effect is a type of deflection that occurs when a charged particle moves through a magnetic field. If a charged particle moves through a magnetic field in an 
   a) circle
   b) straight line
   c) spiral
   d) all of the above
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

7) The direction of the Lorentz force on a charged particle in a uniform electric field is:
   a) perpendicular to the field lines
   b) parallel to the field lines
   c) both
   d) none of the above
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

8) In general, the trajectory of a charged particle in crossed electric and magnetic fields is a cycloid. If \( v = v_0, B = B_0 \), and \( E < E_0 \),
   a) cycloid
   b) straight line
   c) spiral
   d) none of the above
   No, the answer is incorrect.
   Grade: 0
   Attempted Answers: 3

Total points: 8
Total attempts: 11

Due on 2020-04-15, 23:59 IST.