18/7/21

Moving charges & magnetism

HOME ASSIGNMENT

1.) a) Cyclotron is used to accelerate.

b) Any kind of charged particle

→ A cyclotron is an apparatus in which atomic and subatomic charged particles are accelerated by an alternating electric field while following a spiral or circular path in a magnetic field. A cyclotron is used to accelerate both positively & negatively charged particles but a neutral particle can't be accelerated in cyclotron.

2. The force that accelerates the particles in the cyclotron is

c) both electrostatic & magnetic force called Lorentz force.

4) ~~Choose the correct option~~ Inside a dee.

5) → The particle's speed changes.

~~choosing the correct option~~

3) (a) ~~Inside a det~~ choose the correct option

a) → Conductor sheilds any charge within it from electric fields created outside the conductor

5) What is the formula for maximum speed attained by a charged particle in a cyclotron.

a) $v_{max} = \frac{q_B R}{m}$

6) In a cyclotron

b) → maximum speed attained by a charged particle is limited by the relative variation of mass with speed.

2.1) Galvanometer was named after
a) Italian electricity researcher
Luigi Galvani.

2) Galvanometer is used.
a) to detect and measure small electric current.

3) Choose the correct option for current sensitivity of galvanometer.

a) $sp = \frac{\theta}{I} = \frac{NBA}{C}$

4) Increasing the current sensitivity never changes the voltage sensitivity.

(5) Choose the correct option for design formula of galvanometer

d) none of above.

(6) In the galvanometer the radial ~~galvanometer~~ magnetic field makes the magnetic torque

c) zero!

3-1) a) Both the assertion & reason are correct & the reason is the correct explanation for assertion.

2) a) Both the assertion & reason are correct & the reason is the correct explanation for assertion.

3) a) Both assertion & reason are correct & the reason is the correct explanation for assertion

4. d) Both assertion & reason are false.

5) b) Both A & R are true but R is not the correct explanation of A.

6) a) Both A & R are correct & ~~reason~~ R is correct explanation for A.