Q. Why does capacitance increase with a dielectric?

Dielectrics, when placed between charged capacitor plates, become polarized, reducing the voltage across the plates and increasing capacitance.

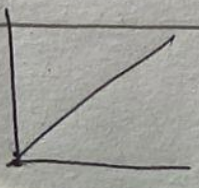
Q Difference between SHM and periodic motion.

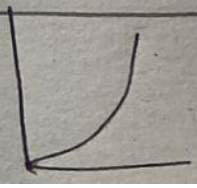
In the periodic motion, the displacement of the object may or may not be in the direction of a restoring force. In the simple harmonic motion, the displacement of the object is always in the opposite direction of the restoring force.

Q. Difference between Ohmic and Non-ohmic conductors.

The conductors that follows Ohm's law are known as Ohmic conductors, whereas conductors that donot follow Ohm's law to a great extent are known as Non-Ohmic conductors.

graph:

ohmic → 

non-ohmic → 

Date

Magnetism

Differences between electric and magnetic forces:

1- The electric force acts in the direction of the electric field, whereas the magnetic force acts perpendicular to the magnetic field.

2- The electric force acts on a charged particle regardless of whether the particle is moving, whereas the magnetic force acts on a moving charged particle.

3- The electric force does work in ~~the~~ displacing a charged particle, whereas the magnetic force associated with a steady magnetic field does no work when a particle is displaced.

- A magnetic field cannot change the speed of a particle.
  - but can alter the direction.

Cyclotron: The angular speed is often reffered to as the cyclotron frequency because charged particles circulate at this angular speed in the type of accelerator called cyclotron.

Date

- The field lines run from north pole to the south pole.

Why does magnetic monopole can't exist?

A magnetic flux that is generated from magnetic materials has a closed loop. This flux generates from the north pole and ended at the south poles in the atmosphere. In absence of any poles, these flux lines cannot be imagined.

Date

Effect of resistance on conductors

~~In a~~ The conductor's resistance increases as the temperature increases.

Effect of resistance on semiconductors

In a semiconductor, as the temp increases, the electrons get excited and jump from the valence band into the conduction band and thereby increases conductance resulting in the decrease of resistance.