* A thin rod of length L is falling vertically downwards in a magnetic field which is uniform and directed vertically upwards.
    a) An emf is induced in it if it is falling with velocity parallel to its length.
    b) An emf is induced in it if it is falling with velocity perpendicular to its length.
    c) No emf is induced.
    d) emf is induced if velocity is uniform.

    Ans: c)

* A rod of length L rotates with a small but uniform angular velocity ω about its perpendicular bisector. A uniform magnetic field B exists parallel to the axis of rotation. The p.d between the Centre of rod and an end is
    a) Zero
    b) $\frac{1}{8}\omega BL^2$
    c) $\frac{1}{2}\omega BL^2$
    d) ωBL^2

    Ans: b)

* A ring is rotating in a vertical plane about a horizontal axis through, it's Centre in a uniform magnetic field also in the plane of the ring. The emf induced between 2 diametrically opposite points on its circumference is
    a) Zero
    b) $2rB\omega$
    c) $rB\omega$
    d) $\frac{rB\omega}{2}$

    Ans: a)

* Consider the following statemennts.
    A) An emf can be induced by moving a conductor in a magnetic field.
    B) An emf can be induced by changing the magnetic field.
    a) Both A and B are true.
    b) A is true, B is false.
    c) B is true, A is false
    d) Both A & B are false.

    Ans: a)

* Two circular loops of equal radii are placed coaxially at some separation. The first one is cut and a battery inserted to drive a current in it. The current changes slightly because of variation of resistance with temperature during this period the two loops.
  a) Attract each other
  b) Repell each other
  c) Do not exert any force on each other
  d) Attract or repell depending on sense of current.

  Ans: a)

* A cylindrical bar magnet is placed along the axis of a circular coil. Current induced in the coil is.
  a) Is zero
  b) Is clockwise from magnet side
  c) May be clockwise or anticlockwise
  d) Is anticlockwise from magnet side.

  Ans: a)

* A square loop of side 10cm & 500 turns is placed normal to the magnetic field which increases at the rate of 1Wb/m^2-sec. The induced emf is
  a) 0.1V
  b) 5V
  c) 0.5V
  d) 1.0V

  Ans: b)

* Magnetic flux ϕ in weber in a closed circuit of resistance 10Ω varies with time t in sec as $\phi = 6t^2 - 5t + 1$. The magnitude of induced current at t = 0.25 sec.
  a) 0.2A
  b) 0.5A
  c) 1.2A
  d) 0.8A

  Ans: a)

* The magnetic field in a region is $\vec{B} = (40\hat{\imath} - 18\widehat{K})\ 10^{-4}$T. How much flux passes through a loop of 5cm^2 area in X-Y plane?

    a) 900 nωb

    b) 9 nωb

    c) 0

    d) 0.9 nωb

    Ans: a)

* A rectangular loop with a sliding connector of length 1.0m is situated in a uniform magnetic field B=2T into the paper. Resistance of connector is 2Ω. The external force required to keep the connector moving with uniform speed 2m/s is

    a) 2N

    b) 1N

    c) 4N

    d) 6N

    Ans: a)

* A small conducting circular loop is placed inside a long solenoid carrying a current. The plane of the loop contains the axis of the solenoid. If the current in the solenoid is varied, the current induced in the loop is

    a) Clockwise

    b) Anticlockwise

    c) Zero

    d) Can't find

    Ans: c)

* An a.c ammeter connected in series in a Circuit reads 5A. The r.m.s value of the current is

    a) $\frac{5}{\sqrt{2}}$ A

    b) 5A

    c) $5\sqrt{2}$ A

    d) $\frac{10}{\pi}$ A

    Ans: b)