Question Bank (I-Scheme)

Name of course: Fundamentals of Electrical Engg.Unit Test: II

Subject code: 22212 (FEE) **Semester: II** **Program: EE**

Unit4: Magnetic Circuits

2 Marks

1. State the phenomenon of magnetic Hysteresis.
2. Define reluctance &permeance.
3. Define magnetic flux density. State its unit.
4. Define magneto motive force. State its unit.
5. Define magnetic flux. State its unit.

4 Marks

1. Draw experimental set up and explain how to obtain hysterics loop of a magnetic material.
2. An iron ring of mean circumference 200cm is uniformly wound with 500 turns of wire. Calculate the value of flux density to produce a current of 1 Amp in the ring.
   Assume $\mu r = 1200$.
3. The field winding of a DC electromagnet is wound with 960 turns and has resistance of 50Ω when the exciting voltage is 230V, the magnetic flux linking the coil is 0.005wb. calculate the self inductance of the coil and energy stored in it.
4. Compare electric and magnetic circuit.
5. Draw a neat sketch of series magnetic circuit. State the value of reluctance for both series and parallel magnetic circuit. Name each term used.
6. Explain the properties of magnetic materials used for,
   a) Permanent magnet
   b) Electromagnet
   c) Non-magnetic material
7. Deduce the formula for reluctance of a magnetic material.
8. Draw and explain the shape of hysteresis loop for
   a) Soft iron
   b) Steel
   c) plastic

Unit5:Electromagnetic Induction

2 Marks

1. State Fleming's Right hand rule.
2. State Lenz's law.
3. State the types of inductors.
4. A magnetic flux of 0.6mwb passed through a coil of 1000 turns is revered in 0.05 seconds. Determine the average value of self-induced emf.
5. Define coefficient of coupling.

4 Marks

1. Distinguish between statically and dynamically induced emfs.
2. A coil consisting of 1000 turns is placed in the magnetic field of 0.3 mwb. Calculate the average emf induced in the coil when it is moved in 0.06 seconds from the given field to a field of 0.1mwb. if the resistance of the coil is 200Ω, find the induced emf in the coil.
3. State and explain Faraday's laws of electromagnetic induction.
4. Define self inductance. Derive the equation for self inductance.
5. Two coils A &B of 1200 turns are arranged such that 60% of the flux produced by A links with coil B. A current of 4A in coil A produces a flux of 0.05wb . Find ,
   L1,L2 and M
6. Define mutual inductance. Derive the equation for mutual inductance.
7. Define dynamically induced emf. Derive the equation for mutually induced emf.