BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY

Unit Test-II
Question Bank

FEE-K Scheme (312310)

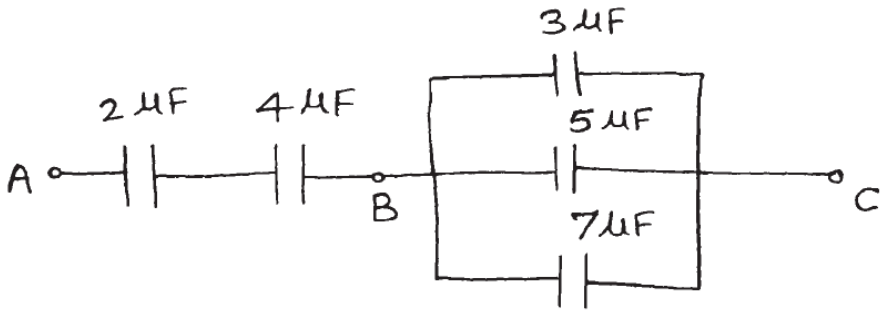
UNIT 3 Capacitors and Battery (14M)

2 M Questions

1. Define Battery and list its types.
2. List different types of capacitor.
3. Define Breakdown Voltage and Dielectric Strength.
4. State the applications of battery
5. State the applications of Capacitor.
6. Compare Primary and Secondary battery.
7. Define Primary and Secondary battery with its example.
8. List four factors affecting the capacitance of a capacitor.

4 M Questions

1. Explain the working of electrolyte capacitor.
2. Explain the working of lead-acid battery.
3. Describe the construction of lead-acid battery.
4. Derive the expression for energy stored in capacitor with the help of a neat diagram.
5. Draw a practical set-up to plot charging and discharging curvesof a capacitor through a resistor. Draw the curves.
6. Plot charging voltage and current curves of capacitor, also write expression for them.
7. Calculate the value of equivalent capacitance of the combination given below



8. Three capacitors 16 μf, 18 μf and 13 μf are connected in a circuit. Find equivalent capacitance when they are connected in -
   (i) series (ii) parallel

UNIT 4 Magnetic circuits (14M)

2 M Questions

1. Define magnetic flux density. State its unit.
2. Define MMF and Reluctance. State its unit.
3. Define Permeance and Flux.
4. Define reluctivity and Magnetic flux density. State its unit.
5. Define Magnetic hysteresis.
6. State the significance of hysteresis loop.
7. State two harmful effects of hysteresis loss.

4 M Questions

1. Compare electric circuit and magnetic circuit (Any eight points)
2. A mild steel ring having a cross-sectional area of 5 cm2 and a mean circumference of 40cm has a coil of 200 turns wound in firmly around it. Calculate: (i) Reluctance of the ring (ii) Current required to produce a flux of 800 Wb in the ring. Assume relative permeability of mild steel as 380.
3. Explain Hysteresis loop of magnetic material with neat labeled diagram.
4. Compare series circuit and parallel circuit.
5. Draw and Explain Series Magnetic Circuit.
6. Draw and Explain Parallel Magnetic Circuit.
7. Explain Series Magnetic Circuit with air gap with neat diagram.
8. Explain Parallel Magnetic Circuit with air gap with neat diagram.
9. Explain steps to plot hysteresis loop.
10. Draw and Explain B-H Curve of a magnetic material.

UNIT 5 Electromagnetic Induction (14M)

2 M Questions

1. State Faraday's laws of Electromagnetic induction.
2. State Fleming's Right hand rule.
3. State Lenz's Law.
4. List the factors affecting the inductance of coil
5. List the types of induced e.m.f's.
6. Define self-inductance of a coil.State its unit.
7. State the factors affecting the Inductance of a coil.
8. List the types of Inductor and Write its applications.
9. Define co-efficient of self-inductance.
10. Define co-efficient of mutual-inductance.

4 M Questions

1. Explain Statically induced EMF.
2. Explain Dynamically induced EMF.
3. Distinguish between statically induced emf and dynamically induced emf.
4. Two coils A of 1000 turns and B of 1200 turns are such that 60% of flux produced by A links with B. A current of 4A in coil A produces a flux of 0.05 wb and in coil B of 0.075 wb. Find –

(i) L1 (ii) L2 (iii) M (iv) K

5. Derive the expression for the energy stored in magnetic field.
6. The field winding of a d.c. electromagnet is wound with 960 turns and has resistance of 50 Ω when the exciting voltage is 230 V, the magnetic flux linking the coil is 0.005 wb. Calculate the self inductance of the coil and the energy stored in magnetic field.
7. Related to an inductor state
   (i) any two types
   (ii) any two applications
   (iii) expression for self and mutual inductance
8. Define any three laws related to electromagnetic induction.Write use of each law.
9. Two coils A and B of 500 and 750 turns respectively are connected in series on the same magnetic circuit of reluctance 1.55 × 106 AT /Wb. Assuming that no leakage flux Calculate –
   (i) Self-inductance of each coil (ii) Mutual inductance between coils.