

BEE IMPORTANT QUESTIONS

UNIT-1 **DC CIRCUITS**

- 1). State and explain the ohms law.
- 2). State and explain the k-laws.
- 3). explain the types of sources and types of circuit element.
- 4). explain the node, mesh analysis.
- 5). explain the theorems (superposition, thevinens and Norton's) with one example.
- 6). Define time constant? Explain the time response analysis in series RL,RC circuits.

UNIT-2 **AC CIRCUITS**

- 1). Define RMS, AVG, PEAK AND FORM FACTOR.
- 2). derive the expression of the RMS value for sinusoidal quantity ($i = I_m \sin \omega t$)
- 3). derive the relation between line and phase (voltage, current) in star & delta connected 3- ϕ system.
- 4). Define resonance? Derive the relation between BW, Q-FACTOR AND resonant frequency.
- 5). explain the series RL& RC circuits with neat phasor diagrams.
- 6). Write the differences between 3- ϕ & 1- ϕ systems.
- 7). Define a). Impedance b).apparent power c).active, reactive powers d).phase difference.
- 8). explain the Significance of the j-operator.

UNIT-3

TRANSFORMERS

- 1). explain the operating principle of transformer and derive EMF equation.
- 2). explain the operation of 1- ϕ transformer on load with phasor diagram.
- 3). explain the IDEAL TRANSFORMER.
- 4). Draw the phasor diagram of 1- ϕ transformer including voltage drops.
- 5). Draw the equivalent circuit of 1- ϕ transformer.
- 6). derive the condition for maximum efficiency of 1- ϕ transformer.
- 7). explain the construction & operation of Auto transformer, cu saving in Auto transformer.
- 8). explain the losses in transformer and differences between shell type and cor type transformer.

UNIT-4

ELECTRICAL MACHINES

- 1). Prove that rotating magnetic field in 3- ϕ induction motor is constant ($\phi_r = 1.5\phi_m$)
- 2). Explain the construction and working of 3- ϕ induction motor (slip ring, squirrel cage)
- 3). Define the slip. How it effects on rotor frequency.
- 4). derive the condition for maximum starting torque and running torque.
- 5). Explain the torque-slip characteristics of 3- ϕ induction motor.
- 6). Prove that power relation 1:S:1-S
- 7). Explain the necessity of starter in 3- ϕ induction motor; describe the Auto transformer, star-delta starter.

- 8). Explain the speed control of 3- ϕ induction motor
- 9). Explain the construction and working of 1- ϕ induction motor and its types.
- 10). Explain the construction of DC MACHINE, EMF, TORQUE, and CHARACTERISTICS of dc motor.
- 11). Explain the construction and working of 3- ϕ alternator.

UNIT-5

ELECTRICAL INSTALLATIONS

- 1). Explain the construction and working following
 - a) MCB
 - b) MCCB
 - c) ELCB
- 2). what is SFU? Explain.
- 3). Explain the types of wires and cable.
- 4). what is earthing? Give its importance.
- 5). Explain the types of earthing a) ROD type b) PIPE type
- 6). what is battery? Explain the types of batteries.
- 7). what is power factor? What are the causes with low power factor?
How can we improve the power factor?
- 8). what is battery backup? Explain with neat diagram.

