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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**B.Tech II Year II Semester Regular Examinations October-2022****ELECTRICAL MACHINES-II**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Explain the classification of transformers. **L1 6M**
b What are the main components of transformer? **L2 6M**

OR

- 2 Derive the E.M.F equation of single phase transformer. **L4 12M**

UNIT-II

- 3 Obtain the approximate equivalent circuit of a given 200/2000V, single phase 25KVA transformer having the following test results **L4 12M**
OC test: 200V, 6A, 350W on LV side
SC test: 70 V, 15A, 600W on HV side

OR

- 4 a Explain sumpner's test in detail. **L3 6M**
b List out the application of three phase transformer. **L1 6M**

UNIT-III

- 5 A 4 pole, 3-phase induction motor operates from a supply whose frequency is 50Hz. Calculate. i) The speed at which the magnetic field of the stator is rotating. ii) the speed of the rotor when the slip is 0.04 iii) the frequency of the rotor currents when the slip is 0.03 iv) the frequency of the rotor currents at standstill. v) speed of the rotor when the slip is unity. **L4 12M**

OR

- 6 a Explain the production of rotating magnetic field in 3 phase induction motor. **L2 6M**
b Draw the Equivalent circuit of a 3 phase induction motor. **L1 6M**

UNIT-IV

- 7 Derive the expressions for starting torque, running torque and maximum torque equations. **L4 12M**

OR

- 8 a Explain the procedure to draw the circle diagram. **L4 6M**
b What are the methods available for speed control of 3 ϕ induction machine? **L4 6M**

UNIT-V

- 9 In a 4-pole, 50 Hz single-phase Induction motor, the power absorbed by the forward and backward field rotor equivalent resistances are 200 W and 21W respectively at a motor speed of 1440 rpm. The total mechanical loss is 20W. Compute the shaft torque at the above speed. **L4 12M**

OR

- 10 a Explain the operating principle of 1 ϕ induction motor. **L3 6M**
b Draw the equivalent circuit of single-phase Induction motor. **L1 6M**

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