R19

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year II Semester Supplementary Examinations February-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   Describe the constructional details of cage and wound rotor induction machines.   L1   12M

OR

2   Explain how rotating magnetic field of constant amplitude is produced.   L2   12M

UNIT-II

3   Explain the procedure to construct circle diagram to find performance characteristics of three phase induction motor.   L2   12M

OR

4   Explain cascade connection method of speed control of 3-phase IM with neat diagram.   L3   12M

UNIT-III

5   a Derive EMF equation of an alternator.   L1   6M

b A 3-phase, 16 pole alternator has a star connected winding with 144 slots and 10 conductors per slot. It is driven at 375 rpm. The line value of Emf available across the terminals is observed to be 2.657KV. Find the frequency of the induced emf and flux per pole.   L1   6M

OR

6   Explain the procedural steps to find voltage regulation of synchronous generator by MMF method.   L2   12M

UNIT-IV

7   Draw and explain the phasor diagram of synchronous motor and derive the back EMF.   L2   12M

OR

8   A 400V, 3 phase, star connected synchronous motor has an armature resistance of 0.2 Ω per phase and synchronous reactance of 2 Ω per phase. While driving a certain load, it takes 25A from the supply. Calculate the back E.m.f induced in the motor if it is working with (i) 0.8 lagging (ii) 0.9 leading and (iii) unity power factor conditions.   L3   12M

UNIT-V

9   Explain the working operation of Universal motor and list out the applications   L1   12M

OR

10   Explain the construction and working operation of permanent magnet stepper motor.   L2   12M

*** END ***