C U SHAH UNIVERSITY

Subject :Electrical Machine-II   Sub Code:4TE04EMC1
Semester: 4th Elect. B.Tech,
Regular Summer Examination 2015

SECTION-I

Q-1		07
(A)	Define :(1) Slip (2) voltage regulation	02
(B)	Draw the figure of T-T connection.	02
(C)	Explain crawling in induction motor.	02
(D)	Which is the usual cause of blow-outs in induction motors?	01
Q-2		14
(A)	Write the different steps to draw circle diagram.	04
(B)	Explain the starting of Induction motor with (i) Primary Resistors (ii) Star-delta starter.	05
(C)	Explain the Parallel operation of Three Phase Transformer.	05

OR

Q-2		14
(A)	Write short note on Shaded pole induction motor.	04
(B)	Why the Single Phase induction motor is not self-starting? Explain the making of single phase induction motor self-starting.	05
(C)	Explain the Open Delta connection of Three Phase Transformer.	05
Q-3		14
(A)	Explain the Double Field revolving theory of 1- Phase induction Motor.	07
(B)	Draw the circle diagram from no-load and short-circuit test of a 3-phase, 14.92 kW, 400 V, 6-pole induction motor from following test results(line values) No-load : 400 V, 11 A, p.f.= 0.2 Short circuit : 100 V, 25 A, p.f.= 0.4 Rotor cu loss at standstill is same as stator cu loss. From the circle diagram, find (i) line current, slip, efficiency and p.f. at full load (ii) the maximum torque	07

OR

Q-3		14
(A)	Draw the circle diagram for a 3-phase, 6-pole, 50 Hz, 400 V star connected induction motor from the following data (line values) No-load : 400 V, 10 A, 1400 W Short-circuit : 200 V, 55 A, 7000 W The stator cu loss at standstill is 60 % of the total cu loss and full load current is 30 A. From the circle diagram determine (i) slip, efficiency, p.f. Torque and output at full load (ii) the maximum torque.	07
(B)	Explain the Speed Control of Squirrel Cage Induction Motor.	07

SECTION-II

Q-4		07
(A)	Explain hunting in synchronous motor.	02
(B)	What are the different methods to measure voltage regulation of alternator?	02
(C)	Write applications of synchronous motor.	02

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(D)   The starting winding of a single- phase motor is placed in the ……… (Fill the   01
      blank).

Q-5   14
(A)   Describe basic concept of alternator. Define and explain (i) Distribution factor   05
      (ii) Pitch factor

(B)   Explain the construction and working principle of Repulsion motor.   05

(C)   Explain the emf equation of alternator.   04

OR

Q-5   14
(A)   Give comparison between synchronous motor and inductance motor.   05
(B)   Explain MMF method to measure voltage regulation of alternator.   05

(C)   Write short note on Capacitor start – and – run motor.   04

Q-6   14
(A)   A 60 KVA, 220 V, 50 Hz, single phase alternator has effective armature   07
      resistance of 0.016 ohm and an armature leakage reactance of 0.07 ohm.
      Compute the voltage induced in the armature when the alternator is delivering
      rated current at a load power factor of (a) unity (b) 0.7 lagging and (c) 0.7
      leading.
(B)   Draw the Connection Three phase transformer (Dd0,Yy0,Dy1,Yd11 and Yy6).   07

OR

Q-6   14
(A)   Explain construction and working of universal motor. Where it is used? How   07
      can control the speed of universal motor?

(B)   Explain effects of varying excitation on armature current and power factor in a   07
      synchronous motor. Draw "V" curves.