

QP Code : 3732

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No. 1 is compulsory.
 (2) Solve any four questions out of remaining six questions.
 (3) Assume suitable data if necessary.

1. (a) Draw and explain On-Load Tap Changer. 5
 (b) Draw and explain torque-slip characteristics of three phase induction motor. 5
 (c) Explain the construction of three phase induction motor. 5
 (d) Explain capacitor start single phase induction motor. 5
2. (a) Explain open delta connection of transformer in detail. 10
 (b) A 3 phase, 6 pole, 500 v star connected I. M. draws the line current of 20 amp. at 0.866 lagging p.f. The stator resistance per phase = 0.75Ω . The rotor exerts a torque of 120 N-m. Running at 960 rpm. The useful mechanical power obtained is 12 kw. Calculate :- 10
 - (i) Efficiency of motor
 - (ii) Slip
 - (iii) Stator iron loss
3. (a) Explain construction & working of shaded pole and split phase single phase induction motor. 10
 (b) Explain double field revolving theory of single phase induction motor. 10
4. (a) Explain Excitation phenomenon in case of transformer. 10
 (b) Draw and explain scott connection of transformer. 10
5. (a) Explain different speed control methods of three phase squirrel cage induction motor. 10
 (b) Two Three phase transformers which have the same turns ratio are connected in parallel and supply a total load of 800 kw at 0.8 power factor lagging. 10
 Their ratings are as follows :

Transformer	Rating	P.U. resistance	P.U. reactance
A	600 KVA	0.01	0.05
B	400 KVA	0.02	0.04

Determine the power output and power factor of each transformer

[TURN OVER

6. (a) Explain various starting methods of three phase induction motor. 10
(b) Explain the construction & working of High Torque Induction Motor. 10
7. (a) Explain No load test and Blocked rotor test of three phase induction motor 10
(b) A 4 pole, 3-phase, 50 Hz induction motor at standstill has 120 V induced across its star-connected rotor terminals. The rotor resistance and standstill reactance per phase are 0.2Ω and 1Ω respectively. 10
- (i) Calculate the rotor speed when the rotor is drawing a current of 16 A at a particular load.
- (ii) Find the speed at which the torque is maximum & the corresponding value of rotor input.
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