Total No. of Questions :10]

SEAT No. :

P3512

[Total No. of Pages : 2

[5560]-162
T.E. (Electrical)
ELECTRICAL MACHINES-II
(2012Course) (Semester-I) (303142)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Black figures to the right indicate full marks.***
3) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
4) ***Assume suitable data, if necessary.***

Q1) a) Give comparison between salient pole and non salient pole type of synchronous machines. **[5]**

b) A 3 phase, 4 pole alternator has 60 slots, 2 conductors per slot, the pitch of coil is 3 slots less than full pitch. Find coil span factor & distribution factor. **[5]**

OR

Q2) a) State and explain conditions to be satisfied for satisfactory parallel operation of 3 phase synchronous generators. **[5]**

b) Explain EMF method of finding voltage regulation of 3 phase synclmonous generater. **[5]**

Q3) a) Explain any two methods of starting 3 phase synchronous motor with suitable diagrams. **[5]**

b) For 2200 volt, 440 KVA, single phase alternator the armature resistance is 0.5 ohm. A field current of 40 Ampere gives an open circuit voltage of 1160 volt and short circuit current of 200 Amp. Calculate synchronous impedance and reactance . **[5]**

OR

Q4) a) Explain parallel generator theorem. **[5]**

b) Explain the phenomenon of hunting in case of synohronous motor. How hunting is eliminated? **[5]**

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Q5) a) Explain construction and working of 3 phase induction voltage regulator. **[8]**

b) Give comparison between normal induction motor and linear induction motor. **[8]**

OR

Q6) a) Explain construction & working of BLDC motor. **[8]**

b) Explain V/F method of speed control of 3 phase induction motor. **[8]**

Q7) a) Draw phasor diagram of single phase AC series motor and explain it in brief . **[8]**

b) Explain the constructional features, working and applications of universal motor. **[8]**

OR

Q8) a) Explain the operation of DC series motor on AC supply. And explain problems associated in this mode of operation. **[8]**

b) Describe the procedure of drawing circle diagram of plain AC series motor. **[8]**

Q9) a) State the methods to make single phase induction motors self starting . Explain in detail operation, characteristics and application of capacitor start motors. **[10]**

b) A 6 pole, 250 volt, 50 Hz single phase induction motor runs at slip of 0.05. The data is as follows. **[8]**

i) No load frictional 1055=75 watt

ii) Forward field gross power absorbed = 160 watt

iii) Backward field gross power absorbed = 20 watt

Find the shaf torque.

OR

Q10) a) Why capacitor start motor is better than the resistance split phase type. Explain with the help of phasor diagram and torque speed characteristics **[10]**

b) Draw equivalent circuit of single phase induction motor neglecting core loss at no load condition and explain it. **[8]**