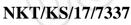
P. Pages : 2

B.E. Fifth Semester (Electrical Engineering) (C.B.S.) Electrical Machines - II

Time : Three Hours



Max. Marks : 80

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- Notes: 1. All questions carry marks as indicated.
 - 2. Solve Question 1 OR Questions No. 2.
 - 3. Solve Question 3 OR Questions No. 4.
 - 4. Solve Question 5 OR Questions No. 6.
 - 5. Solve Question 7 OR Questions No. 8.
 - 6. Solve Question 9 OR Questions No. 10.
 - 7. Solve Question 11 OR Questions No. 12.
 - 8. Due credit will be given to neatness and adequate dimensions.
 - 9. Assume suitable data whenever necessary.
 - 10. Illustrate your answers whenever necessary with the help of neat sketches.
 - 11. Use of non programmable calculator is permitted.
- a) Explain the difference between cylindrical & salient pole synchronous machine.
- b) In a three phase, 4 pole, 1000 rpm Y connected alternator has 60 slots with 8 conductor/slot 7 for double layer winding. The flux per poles 100 mwb. find the line valve of the produce emf if coil are short piten by 3 slots. If the flux per pole has third harmonics component which is 20% of fundamental find the valve of induce line emf.

OR

- 2. a) State the advantages of stationary armature and rooting field system in an alternator.
 - b) Why are the coils of alternator stater winding are short pitched?
 - c) A three phase, 16 pole alternator has a star connected winding with 144 slot and 10 conductor per slot. The flux per pole is 0.03 wb sinusoidally distributed and the speed is 375 rpm. Find the frequency and line Emf. Assume full piten coil.
 - a) Explain the synchronous impedance method for the determination of voltage regulation of an alternator.
 - b) A 3 phase, 100 KVA, 1000 volts alternator is tested for O.C and S.C tests. The alternator generates 950 volts across its terminals at an excitation of 5 Amp during O.C test. The same excitation circulates rated current during S.C test. The effective armature resistance per phase is 0.5 Ω Determine the voltage regulation of the alternator at full Load 0.8 p.f lagging with terminal voltage 200V

OR

a) Explain the effect of armature reactions in three phase synchronous generator at lagging, leading and unity p.f.

A salient pole synchronous generator has following per unit parameters ra/ph = 0.05 pu, xd/ph = 0.8 pu, Xq = 0.5 pu. If the generator is supplying rated kvA at of rated voltage at 0.8 p.f lagging and 0.6 p.f leading. Calculate the regulating and load angle for both cases. Draw phaser diagram.

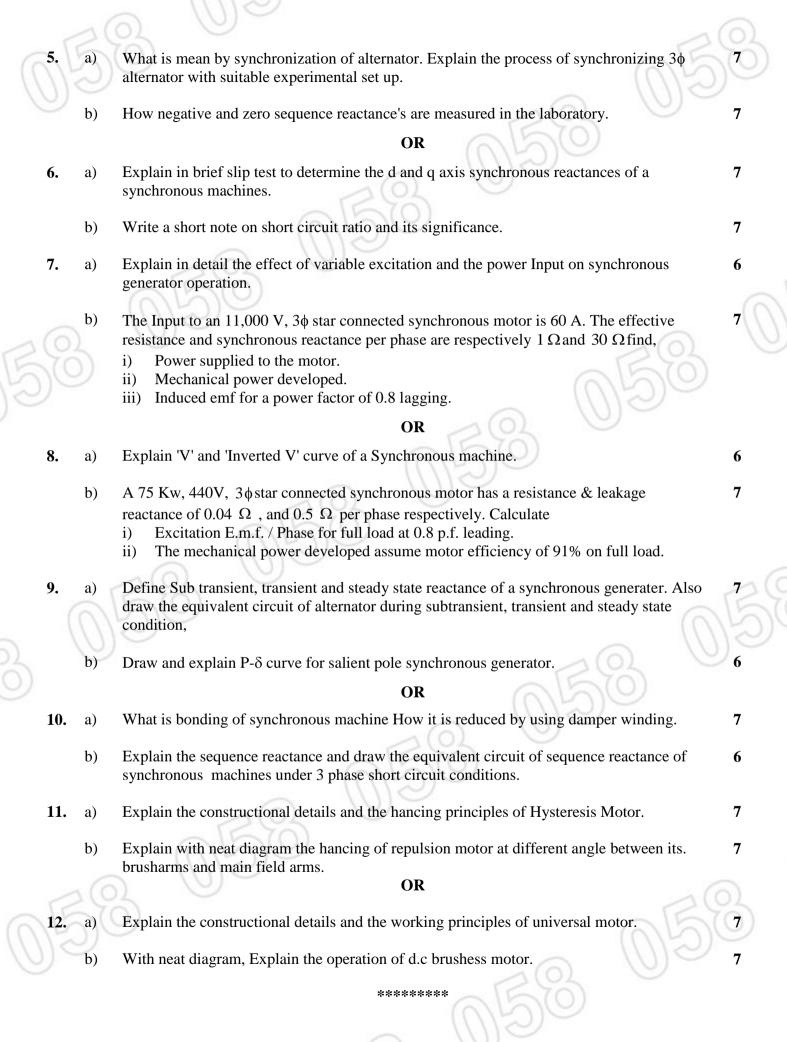
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3.

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b)



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