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B.E. DEGREE EXAMINATION, APR/MAY – 2012
V SEMESTER
ELECTRICAL AND ELECTRONICS ENGINEERING
EE9304 ELECTRICAL MACHINES - II

Time: 3 Hours

Max. Marks: 100

Answer all questions

PART- A (10 X 2 = 20)

1. What do you mean by capability curve of synchronous machines?
2. Define: Short Circuit Ratio.
3. Why do we usually operate alternators in parallel?
4. What is called as synchronous condenser?
5. Draw V and inverted V curves of synchronous motor?
6. How does an induction motor run as generator?
7. Write the emf equation of a synchronous generator.
8. State the applications of single phase Induction motors.
9. Induction motor can not run at synchronous speed. Why?
10. What is cogging in Induction motor?

PART- B (5 X 16 = 80)

11. Describe EMF method of determining the voltage regulation of 3-phase Synchronous generator.

12 (a) A 3-phase, star connected alternator is rated at 1500 kVA, 12,000V. The armature effective resistance and synchronous reactance are 2 ohms and 35 ohms respectively per phase. Calculate the percentage regulation for a load of 1200 kW at power factors of (i) 0.8 lagging (ii) 0.8 leading

(OR)

12 (b) Describe methods of synchronizing an alternator with bus bar.

13 (a) Explain the step by step procedure of drawing the circle diagram of a 3 phase Induction motor. How can the performance characteristics be determined from it?

(OR)

13(b) What are the methods available for speed control of 3 phase induction motors? Explain few of them with neat circuit diagrams.

14 (a) Explain the construction and the principle of operation a 3 phase and single phase Induction motor with neat sketches.

(OR)

14 (b) Draw an approximate equivalent circuit of 3 phase Induction motor and explain the tests to be conducted on it to find the parameters of the equivalent circuit.

15(a) Explain the operation of single phase induction motor on the basis of double field revolving theory.

(OR)

15 (b) Write a note on the operation of (i) Hysteresis motor (ii) Universal motor
