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BIEE-020

00845

B.Tech. ELECTRICAL ENGINEERING

Term-End Examination

June, 2013

BIEE-020 : ELECTRICAL MACHINES AND ELECTRONICS

Time : 3 hours *Maximum Marks : 70*

*Note : Attempt **any five** questions in all.*

1. (a) Derive the numerical relationship between line and phase currents for a balanced 3 - phase delta connected load. **10**

   (b) State the advantages of A.C. poly phase supply system over a single - phase system. **4**

2. Describe the method of calculating the regulation and efficiency of a single phase transformer by open circuit and short circuit tests. **14**

3. (a) A 200 kVA transformer has an efficiency of 98% at full load. If the maximum efficiency occurs at three quarters of full load, calculate the efficiency at half load. Assume negligible magnetising current and p.f. of 0.8 at all loads. **10**

   (b) Write a short note on welding transformer. **4**

4. (a) Derive an expression for the torque of an induction motor and obtain condition for maximum torque. 10

(b) A-3 phase, 4 pole, 50 Hz induction motor is running at 1440 rpm. Determine the slip speed and slip. 4

5. (a) Explain the steady state and dynamic characteristics of electric drives. 10

(b) Name the different parameter on which size of motor depends. 4

6. (a) What is a inverter ? Draw and explain an inverter circuit with waveform. 10

(b) Why single phase induction motor is not self started ? 4

7. Write short notes on following : 2x7=14

(a) Load equalization

(b) Measurement of reactive volt ampers