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B.E (Full Time) DEGREE EXAMINATIONS NOV/DEC 2011

Second Semester

Industrial Engineering (R 2008)

EE 9169 Fundamentals of Electrical Engineering

Answer ALL Questions

Max marks: 100

Time: 3 Hrs

Part-A (10x2=20)

1. State Kirchoff's Laws.
2. State the condition for the ohm's Law..
3. What is meant by impedance?
4. Discuss in brief about the various parts of synchronous motors.
5. What is meant by transformation ratio?
6. Write the expression for complex power.
7. Compare and contrast MC and MI meters.
8. What is the expression for power factor by two wattmeter method of power measurement?
9. What is Energy and how is it measured?
10. What is meant by error in a measurement?

Part-B(5x16=80)

11. a) A resistor of 150 ohms is connected in series with a 65 μ F capacitor to a supply at 230 V, 50 Hz. Find (i) the impedance (ii) the current (iii) the phase angle (iv) the power factor (v) the voltage across the resistor and across the capacitor. [16]
12. a) A voltage of 230 V is applied to a rheostat of resistance 550 ohms. Find the resistance between two tapping points connected to a circuit needing 2 A at 30V. [16]

[OR]

- b) i) An AC voltage wave is expressed as $e = 330 \sin 325t$. Find the peak voltage, frequency, rms voltage and instantaneous voltage at $t = 1/500$ second. [10]
- ii) Define the following: RMS value, Average value and Peak Value. [6]

13. a) Explain the principle of working of synchronous motor with its neat constructional figure. [16]

[OR]

- b) Write and explain the measurement method of three phase total power two wattmeter method with relevant phasor diagrams. [16]

14. a) Discuss the working principle of single phase induction motor with its internal parts. [16]

[OR]

- b) Explain the constructional details of a DC motor with neat sketches. [16]

15. a) i) Explain the various measurement-system elements in general. [8]
ii) Write and explain the classification of errors. [8]

[OR]

- b) i) What are the different types of standards and explain them briefly. [8]
ii) Explain in detail, the working principle PMMC instruments. [8]
