Reg. No. : | | | | | | | | | | | | |

T 3914

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Annual Pattern — First Year

(Regulation 2004)

Computer Science and Engineering

EE IX11 — ELECTRICAL ENGINEERING

(Common to Information Technology)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is meant by electric energy?

2.   What are the advantages of polyphase system?

3.   State Faraday's law of electromagnetic induction.

4.   What is mutual inductance?

5.   List out the different types of DC motor.

6.   What are the advantages of three phase Transformer?

7.   Define pitch factor.

8.   Single phase induction motor is not self standing. Why?

9.   Compare open loop and closed loop systems.

10.   Define Rise time (tr).

11. (a) Use super position theorem to find a current through 20 Ω resistance.
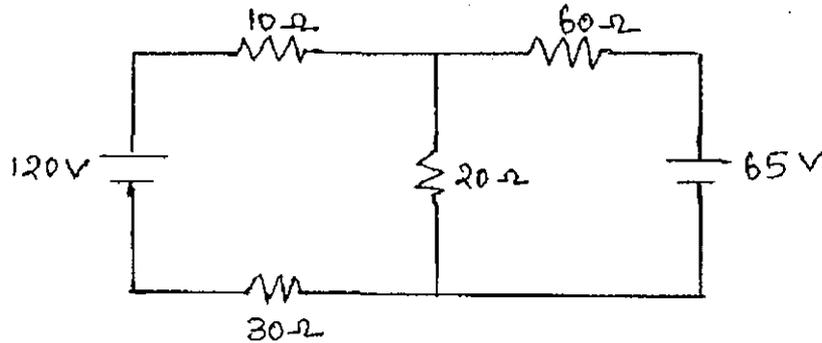
Or

(b) In a series RLC circuit R = 24 Ω, L = 191 mH, C = 100 μF given that the supply voltage is 240 V, 60 Hz, Find (i) Equivalent impedance (ii) Power factor (iii) Current (iv) Power (v) Reactive power.

12. (a) Write short notes on :

(i) Parallel Magnetic Circuits.

(ii) AC operation of Magnetic Circuits.

Or

(b) (i) Explain the terms self and mutual inductances.

(ii) A coil has a self-inductance of 30 mH. Calculate the EMF induced in the coil when the current in the coil (1) Increases at the rate of 300 A/sec. (2) Raises from 0 to 10 A in 0.06 seconds.

13. (a) Derive the equivalent circuit of a Single-phase transformer and show how it is useful in the analysis of the performance of a transformer.

Or

(b) Discuss the function and constructional details of the following parts of a DC machine (i) Commutator (ii) Brush assembly and (iii) Interpoles.

14. (a) Explain various methods of starting of three phase induction motor.

Or

(b) Describe various methods of starting of single-phase induction motor with industrial applications.

15. (a) Explain the working principle of a 2-Phase AC servomotor. Derive its transfer function.

Or

(b) Derive the transfer function of a separately excited DC generator at no load condition.

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