D 34315 (Pages : 2) Name.....

Reg. No.....

COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, FEBRUARY 2013

CS 04 109—BASIC ELECTRICAL ENGINEERING

(Common for CS, IT, PT)

(2004 Scheme)

Time : Three Hours **Maximum : 100 Marks**

Answer **all** *questions.*

I. (a) Write notes on dependent and independent sources.

(b) State superposition theorem using an example.

(c) Write the expressions for three phase voltages and currents. Draw three phase voltage and current waveform.

(d) State the properties of Laplace transform.

(e) Explain the following : Hysteresis loss and Eddy current loss.

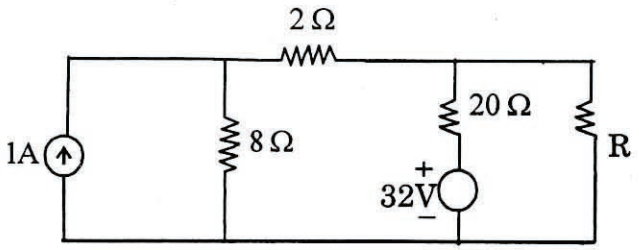
(f) Write about the constructional features of DC machines.

(g) Explain about the classification of instruments.

(h) Describe the features of slip-ring motors.

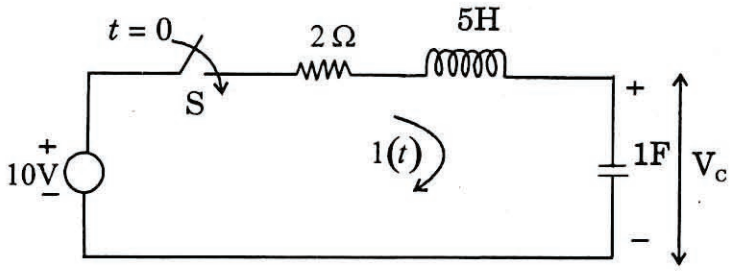
(8 × 5 = 40 marks)

II. (a) Find the Thevenin and Norton equivalent of the circuit of Figure 1 as seen at terminal ab.



Or

(b) Solve for $Vc(t)$ in the circuit of Figure 2. The circuit is initially quiescent (zero initial conditions).



(1 × 15 = 15 marks)

Turn over

III. (a) (i) A parallel resonant circuit has R = 6Ω , L = 5 mH and C = 50pF. Determine f_0, Q_0 and bandwidth.

(ii) Write notes on power in steady state for sinusoidal circuits.

Or

(b) For the periodic square wave beginning at $t = 0$, find the Laplace transform.

(1 × 15= 15 marks)

IV. (a) Draw a equivalent circuit of a transformer and explain.

Or

(b) Explain shunt generator using a neat diagram.

(1 × 15= 15 marks)

V. (a) Explain the constructional features of induction machine.

Or

(b) Explain dynamo meter type watt meter.

(1 × 15= 15 marks)

[4 × 15 = 60 marks]