

1E2005

Roll No. : _____

Total Printed Pages : **4****1E2005**

B. Tech. (Sem. I) (Main/Back) Examination, December - 2013
105 Basic Electrical & Electronics Engineering
(Common to All Branch)

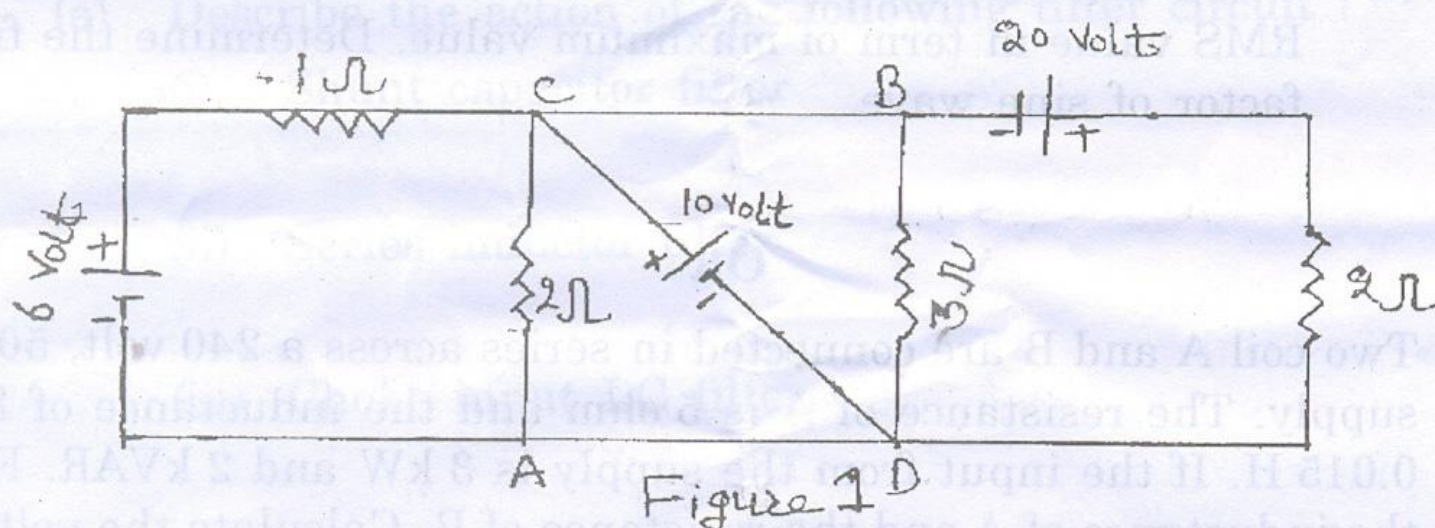
Time : **3 Hours**][Total Marks : **80**[Min. Passing Marks : **26 (Main)**Min. Passing Marks : **24 (Back)**

*Attempt any five questions. Selecting one question from each unit.
 All questions carry equal marks. Schematic diagrams must be
 shown wherever necessary. Any data you feel missing suitably
 be assumed and stated clearly. Units of quantities used /
 calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
 (Mentioned in form No. 205)

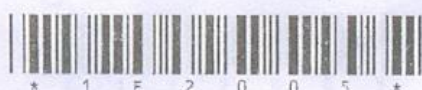
1. NIL2. NIL**UNIT - I**

- 1 (a) State and explain Thevenin's theorem. Illustrate the application of this theorem with reference to an appropriate electric circuit. 8
- (b) Find the voltage drop between terminal AB, CB and AD in fig. 1.



OR

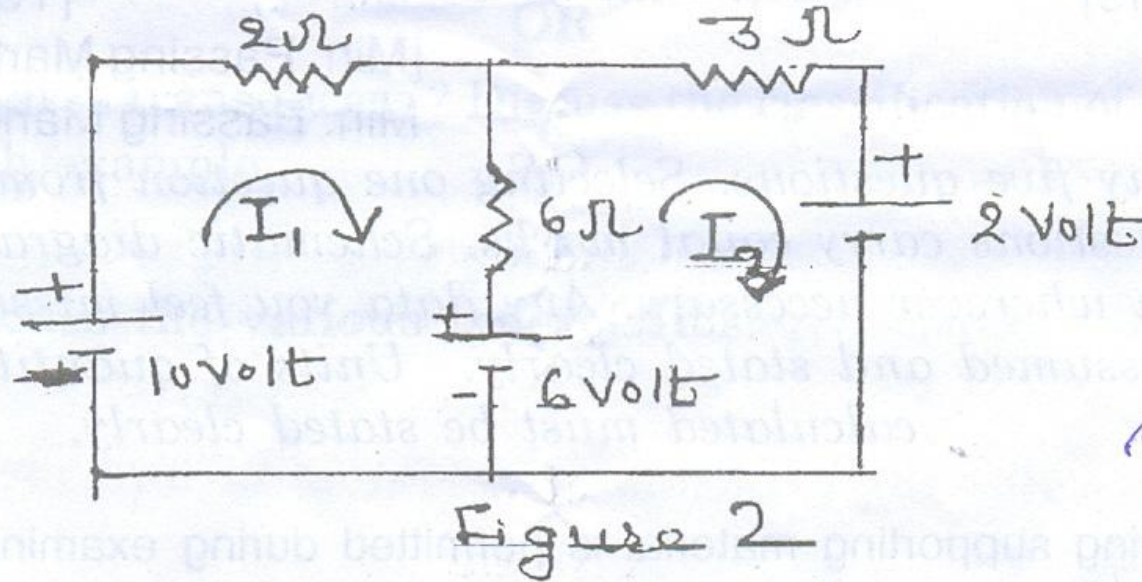
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[Contd...

- 1 (a) State and explain superposition theorem. Illustrate the application of this theorem with reference to an appropriate electric circuit. 8
- (b) Using loop current method find the current I_1 and I_2 in fig. 2.



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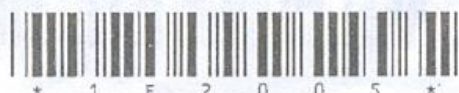
UNIT - II

- 2 (a) A series RL circuit has resistance and reactance of 15 ohm and 10 ohm respectively. Calculate the value of capacitor which when connected across the series combination in parallel, the system attain unity power factor. 8
- (b) For a single phase sinusoidal waveform find the average and RMS value in term of maximum value, Determine the form factor of sine wave. 8

OR

- 2 Two coil A and B are connected in series across a 240 volt, 50 Hz supply. The resistance of A is 5 ohm and the inductance of B is 0.015 H. If the input from the supply is 3 kW and 2 kVAR. Find the inductance of A and the resistance of B. Calculate the voltage across such coil.

16



UNIT - III

- 3 (a) Explain the principle of D.C. machines and construction of D.C. machine.

12

- (b) A 8 pole lap wound armature has 40 slots with 12 conductor per slots, generate a voltage of 500 volts, determine the speed at which it is running if flux per pole is 50 wb.

4

OR

- 3 (a) Explain the principal and working of 3-phase induction motor and explain type of 3-phase induction motor.

8

- (b) Describe the principle of operation of 3-phase synchronous generator.

8

UNIT - IV

- 4 (a) Define α and β of a transistor, derive the relationship between them.

8

- (b) Write short note on P-N Junction diode and Zener diode.

8

OR

- 4 (a) Describe the action of the following filter circuit :

(i) Shunt capacitor filter

2

(ii) Series inductor filter

2

(iii) Choke input LC filter.

4

- (b) Explain different type of logic gates and design their truth tables.

8



UNIT - V

- 5 (a) What do you mean by modulation ? Discuss the amplitude modulation in details.

8

- (b) Discuss the configuration and properties of satellite communication.

8

OR

- 5 (a) What is transducers ? Discuss the classification of transducers with example.

8

- (b) Discuss the various type of IC's.

8

UNIT - IV

- 4 (a) Define α and β of a transistor, derive the relationship

- between them.

- (b) Write short note on P-N junction diode and Zener diode.

- (c) Write short note on P-N junction diode and Zener diode.

- (d) Write short note on P-N junction diode and Zener diode.

OR

- 4 (a) Describe the action of the following filter circuit :

- (i) Shunt capacitor filter

- (ii) Series inductor filter

- (iii) Choke input LC filter

- (iv) Capacitor input LC filter

- (v) Zener diode regulator

- (vi) Explain different type of logic gates and design their truth

- tables

- (vii) Explain different type of logic gates and design their truth

- tables

