



F.E. (Rev.) (CBSGS), Sem - I

Sub: Basic Electrical & Electronics Engg.

(REVISED COURSE)

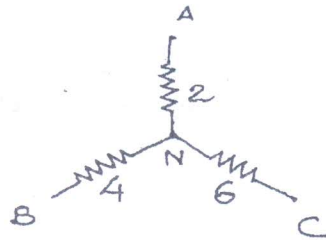
(3 Hours)

QP Code : 1015

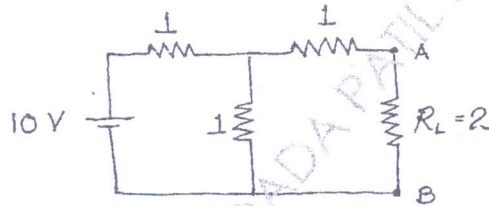
[Total Marks : 80

- N.B. :**
- (1) Question no. 1 is compulsory.
 - (2) Attempt any three questions from the remaining five.
 - (3) Figures to the right indicate full marks.
 - (4) Wherever not mentioned values of resistance is in ohms.
 - (5) Assume suitable data if necessary.

1. (a) Convert the star circuit into its equivalent delta circuit. 3



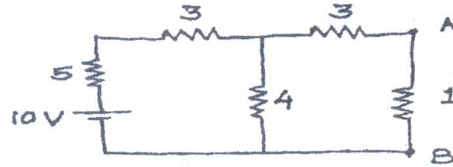
(b) For the given circuit find the Norton equivalent between points A and B. 3



- (c) Draw an a.c. waveform, indicate there on and explain (i) instantaneous value, (ii) peak value and (iii) time period for one cycle of the alternating quantity 3
- (d) Differentiate between series and parallel resonance with respect to 3
 - (i) Impedance at resonance
 - (ii) Current at resonance
 - (iii) Magnification factor
- (e) Draw the phasor diagram for 3 phase delta connected load with a lagging power factor. Indicate line and phase voltage and currents. 2
- (f) Derive the emf equation for a single phase transformer. 4
- (g) Draw a neat circuit diagram for a full wave bridge rectifier using 4 diodes and the corresponding input and output waveforms for voltage. 2



2. (a) Find the current through 1Ω resistance using Mesh Analysis. 6



(b) A coil having a resistance of 10Ω and an inductance of 40 mH is connected to a 200V , 50 Hz supply. Calculate the impedance of the coil, current, power factor and power consumed. 8

(c) Draw the phasor diagram of a transformer on no load and explain the various currents and voltages in it. 6

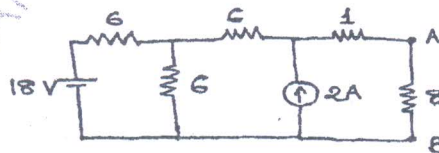
3. (a) Three similar coils each having a resistance of 10Ω and inductance of 0.04 H are connected in star across a 3 phase, 50 Hz , 200V supply. Calculate the line current, total power absorbed, reactive volt amperes and total volt amperes. 8

(b) With the help of a neat diagram explain how short circuit test is conducted on a single phase transformer 6

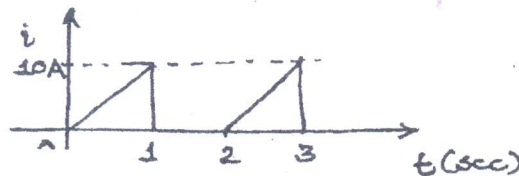
(c) Draw the circuit diagram of a full wave centre tapped rectifier with capacitor filter and the corresponding input and output waveforms. 2

(d) With the help of a neat diagram explain the output characteristics of an NPN transistor in common emitter configuration 4

4. (a) Using source transformation find the current flowing through the 8Ω resistance 7



(b) Find the rms value for the given waveform 5



[TURN OVER

