Total No. of Questions – [4] Total No. of Printed Pages 2

G.R. No.	

Paper Code :- U127-104B(T1)

FEBRUARY 2018 / IN - SEM (T1)

F. Y. B.TECH. (COMMON) (SEMESTER - II)

COURSE NAME : BASIC ELECTRICAL ENGINEERING

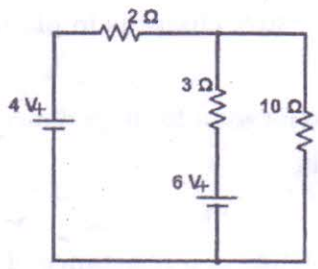
(2017 PATTERN)

Time : [1 Hour] [Max. Marks : 30]

(*) Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q 1) a) Calculate current flowing in 10 Ω resistance using Thevenin's theorem for the circuit given below. [6]



b) Using the equations derived from three delta connected resistances into its equivalent star, derive the equations to convert these three star connected resistances into its equivalent delta circuit. [6]

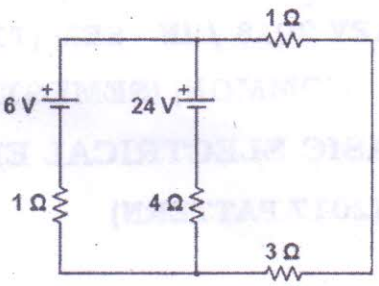
c) Define following terms with suitable examples:

1. Linear network 2. Non-linear network [4]

OR

Q2) a) State and explain Kirchhoff's laws. [6]

b) Using superposition theorem, find current flowing through 4 Ω resistance for the network shown. [6]



c) Define following terms with suitable examples:

1. Unilateral network 2. Bilateral network [4]

Q3) a) A coil having resistance of 10 Ω and an inductance of 0.2 H is connected to 220 V, 50 Hz supply. Calculate:- (i) Impedance (ii) Phase angle (iii) Power factor (iv) Current (v) Power consumed [6]

b) Prove that current in purely resistive circuit is in phase with applied AC voltage. [4]

c) Draw impedance triangle, write formula for impedance and phase angle and nature of p.f. for series R-L circuit. [4]

OR

Q4) a) A series R-C circuit consisting of a resistance of 8 Ω and a capacitor of 50 μF is connected across 200 V, 50 Hz ac supply, calculate: i) Impedance ii) Voltage drop across resistance iii) Voltage drop across capacitance. [6]

b) Define terms:

1. Active Power 2. Reactive Power

Also write formula along with their units. [4]

c) Draw circuit diagram and phasor diagram for series R-C circuit connected to an alternating voltage source. [4]