B.Tech. 2nd Semester (F-Scheme) Examination,
May–2018
ELECTRICAL TECHNOLOGY
Paper–EE–101-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : ***Question No. 1 is compulsory.*** *Attempt* ***five*** *questions in all, selecting at least* ***one*** *question from each section.*

1. (a) What is meant by linear and nonlinear networks ? Explain it with examples. 5

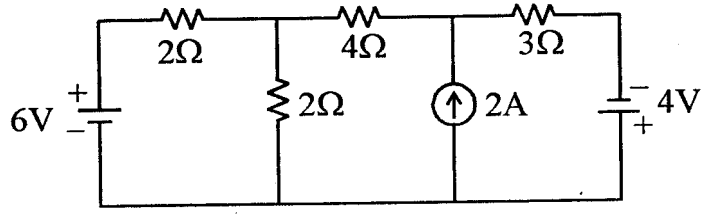
(b) Describe the importance of Q-sector of a circuit with an example. 5

(c) How short circuit test of transformer is conducted ? Explain. 5

(d) Briefly explain the working of moving coil instruments. 5

Section–A

2. What is superposition theorem. Find the value of voltage across resistance in the given circuit. 20



3. (a) State and explain Millman's theorem. 10

(b) State and explain Kirchoff's laws for voltage and current. State examples of each. 10

Section–B

4. (a) Define and explain the terms mentioned below :

(i) average value

(ii) form factor

(iii) peak factor 10

(b) An a.c. circuit consists of resistance of 3Ω, and inductance of 0.02 H, connected to a 220V, 50Hz. supply. Find the value of capacitor that can be placed in parallel with the inductive ckt. to produce the resonance. Also find the current taken from supply at resonance. 10

5. Two inductive coils are connected in parallel across a 200V, 50 Hz. At the supply frequency, their impedances are 6 and 10 ohm respectively and their resistances are 2 and 3 ohm respectively. Find the current in each coil, the total current, and the total power. 20

Section–C

6. Draw and explain the circuit diagram and phasor diagram of single phase practical transformer diagram at resistive load. 20

7. (a) Explain two wattmeter method of power measurement in 3 phase AC system at balanced load. 10

(b) A 3-phase, 440V, 50Hz. supply is connected to a star connected balanced load consisting of 100 Ω resistor in each branch. Find the line current and power absorbed by the circuit. 10

Section–D

8. Write notes on : 10×2

(i) Energy meter

(ii) Synchronous machines

9. (a) Explain how the 3-phase supply is generated in 3-phase synchronous generator. 10

(b) Illustrate various losses of D.C. machines. 10