[Total No. of Questions - 9] [Total No. of Printed Pages - 3] (2125)

15018

B. Tech 1st Semester Examination

Basic Electrical & Electronics Engineering (NS)

BE-101

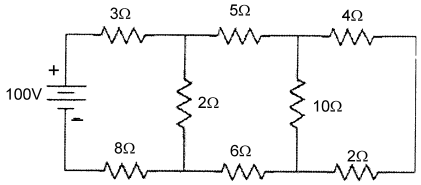
Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question each from section A, B, C & D. Section-E is compulsory.

SECTION - A

1. (a) Find the current through each branch by network reduction technique. (12)



(b) Explainany one type of MI instruments. (8)

2. a) A series circuit has R=10Ω, L=50mH, and C=100μF and is supplied with 200V, 50Hz. Find (i) Impedance (ii) current (iii) power (iv) power factor (v) voltage drop across the each element. (12)

(b) Derive the equation for equivalent resistance of number of resistors connected in parallel. (8)

[P.T.O.]

SECTION - B

3. (a) Discuss the phasor relationship between emf and current when a.c flow through series R-L circuit. (8)

(b) A resistance of 12Ω, inductance of 0.1H and a capacitance of 100μF are connected in series across ac 220V, 100Hz supply. Calculate the current and its power factor, power consumed and phase angle mentioning whether its leading or lagging. (12)

4. (a) Three impedances of 42< –35° are connected in delta to a three phases, three wire, and 350 volts ABC system. Find the line currents. (10)

(b) Derive emf equation of a dc generator. (10)

SECTION - C

5. (a) What is PN junction? Draw and explain its characteristics. (12)

(b) Explain the construction and operation of half wave rectifier. (8)

6. (a) Explain the input and output characteristics of transistors in common collector configuration. (10)

(b) Explain the V-I characteristics of diode. (10)

SECTION - D

7. (a) What are MOSFETs? Draw and explain its characteristics. (10)

(b) Explain the role and importance of general purpose instruments. (10)

8. (a) What are OP Amps? Explain their working. (10)

(b) Explain the measurement of frequency and phase with CRO. (10)

SECTION - E

9. (a) State Kirchhoff's laws.

(b) What is phase sequence?

(c) Define power factor.

(d) Mention the difference between core and shell type transformer.

(e) What are the types of semiconductor?

(f) How are amplifiers classified according to the transistor configuration?

(g) Write the application of OP Amps.

(h) What is photodiodes?

(i) What is FET?

(j) How does d.c motor differ from d.c generator in construction? (2×10=20)