

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2064)

14606

B. Tech 2nd Semester Examination
Basic Electrical & Electronics Engineering (N.S.)
BE-101

Time : 3 Hours

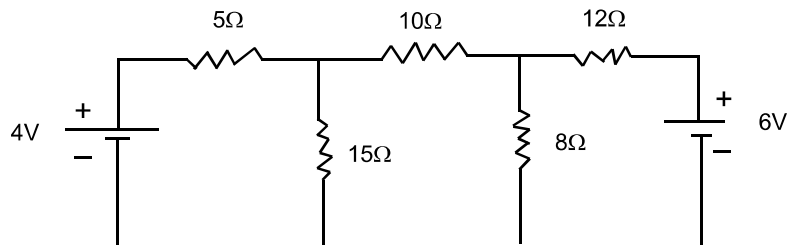
Max. Marks : 100

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) Using nodal method find current through 8Ω resistor for the circuit shown below. (12)



- (b) Explain the generation of alternating voltage and currents. (8)
2. (a) Derive an expression for RMS value of an A.C. supply. (4)
- (b) A coil of resistance 100Ω and inductive reactance 200Ω is connected across supply voltage of 230V. Find the supply current. (4)

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- (c) Explain the principle, construction, and working of moving iron instruments. (12)

SECTION - B

3. (a) Discuss the phasor relationship between emf and current when a.c. flows through series L-C circuit. (8)
- (b) A series circuit has $R = 10\Omega$, $L = 50\text{mH}$, and $C = 100\mu\text{F}$ and is supplied with 200V, 50Hz. Find (i) Impedance (ii) current (iii) power (iv) power factor (v) voltage drop across the each element. (12)
4. (a) A 400V is applied to three star connected identical impedances each consisting of a 40Ω resistance in series with 3Ω inductive reactance. Find (i) line current (ii) Total power supplied. (8)
- (b) Explain the principle, working and construction of either dc generator or motor. (12)

SECTION - C

5. (a) What is a Zener diode? Explain the operation of the Zener diode and draw its characteristics. (10)
- (b) Explain the operation of half wave rectifier with neat sketch and derive the necessary expression. (10)
6. (a) Explain the input and output characteristics of transistors in common base configuration. (10)
- (b) Explain the V-I characteristics of a diode. (10)

SECTION - D

7. (a) Explain the construction and working of MOSFET. (12)
- (b) What is CRO? How we use it for measurement of frequency? (8)

8. (a) Draw and explain the characteristics of ideal OP Amp. (10)
- (b) Explain the role of general purpose instruments. (10)

SECTION - E

9. (a) What are linear and non linear circuits?
- (b) Define voltage transformation ratio for transformers. Also write the condition for step up transformer.
- (c) What are various classifications of ICs?
- (d) What is LED?
- (e) What are photodiodes?
- (f) What is parallel resonance? When does it happen?
- (g) Explain the characteristic of common emitter transistors.
- (h) Define term slip and slip frequency for induction motor.
- (i) Explain the term CRO and its applications.
- (j) Draw power triangle. Explain the relationship between various terms. (2×10=20)