

GYANMANJARI INNOVATIVE UNIVERSITY
GYANMANJARI INSTITUTE OF TECHNOLOGY
B. Tech. – Mid Semester Examination (MSE)- 2025

Enrollment No.:

Subject code: BETEE10301

Subject name: Basic Electrical & Electronics Engineering

Time: 02:30 PM to 04:30 PM

Date of exam: 08/10/2025

Semester: I

Total Marks: 60

Instructions:

- (i) Question No. 1 is compulsory.
- (ii) Make suitable assumptions wherever necessary and state them clearly.
- (iii) Figures to the right indicate full marks.

Q.1 (a) Explain following terms

(i) Reluctance

(ii) flux leakage coefficient

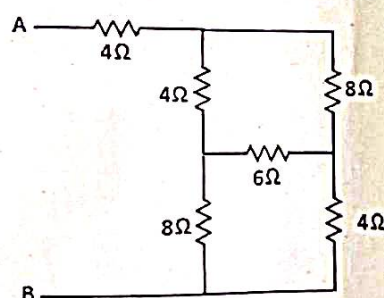
5

Q.1 (b) What is earthing? Explain one method of earthing in brief.

5

Q.1 (c) Find the equivalent resistance between A & B in the given network.

10



Q.2 (a) Explain following terms

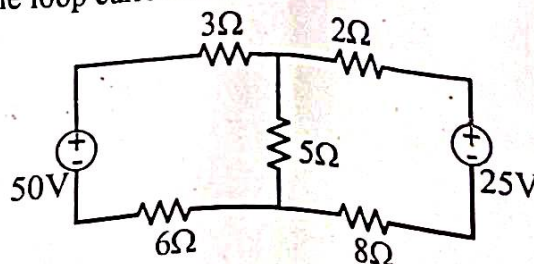
(i) Eddy Current losses

(ii) Fleming's Right-Hand Rule

5

Q.2 (b) In the circuit shown in the figure below, determine all branch currents and the voltage across the 5 Ω resistor using the loop current method.

5



OR

Q.2 (b) Find the expression of energy stored in a Capacitor. 5

Q.2 (c) Find the expression of rise of Current in an Inductive Circuit. 10

OR

Q.2 (c) Two coils A and B of 500 and 750 turns respectively are connected in series on the same magnetic circuit of reluctance 1.55×10^6 AT/Wb. Assuming that there is no flux leakage, calculate (i) self-inductance of each coil (ii) mutual inductance between coils. 10

Q.3 (a) What are P-type and N-type semiconductors? Explain with neat diagram. 5

Q.3 (b) Explain the working principle of LED with neat diagram. 5

Q.3 (c) With neat circuit diagram and input/output waveforms, explain the working of a bridge type full-wave rectifier. 10

OR

Q.3 (a) Determine the electrostatic force between the two charges of magnitude 2 C and -1 C separated by a distance 1m in air. 5

Q.3 (b) With neat diagram and waveform, explain the working of a series positive clipper circuit. 5

Q.3 (c) Explain how the Zener diode acts as a voltage regulator using a circuit diagram. 10