



C16-AEI-106

6013

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2017

DAEI—FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

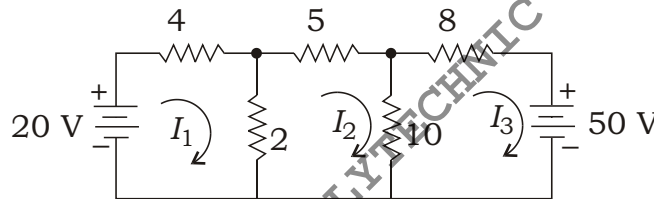
1. Define active and passive circuits.
2. State superposition theorem.
3. State the relation between voltage and current in pure inductive circuit.
4. Define the resonance in series RLC circuit.
5. List the methods used to solve the AC parallel circuits.
6. State Joule's law of electric heating.
7. List the main parts of electric iron.
8. State the losses in a transformer.
9. Define the efficiency of a transformer.
10. Define back e.m.f. of a DC motor.

PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) Convert ideal voltage source to ideal current source. 6
(b) Give the transformation formulae for star-delta and delta-star transformations. 4
12. Determine the current in each branch of the circuit given below by using loop current method :



13. A circuit having a resistance of 6 ohms and inductive reactance of 8 ohms is connected in series. This circuit is connected across 200 V, 50 Hz supply. Calculate (a) impedance (b) current (c) power factor (d) phase angle (e) power consumed.
14. (a) Define the terms phase and phase difference. 5
(b) Define Q-factor. Mention the importance of Q-factor. 5
15. Explain the construction and working principle of electric geyser with diagram.
16. Derive the EMF equation of transformer.

- * 17. Explain the construction (core type and shell type) of transformer with diagrams.
18. (a) Explain the working principle of alternator. 5
- (b) List different losses in DC machines. 5

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