

Regular

Exam.Code:0906
Sub. Code: 33267

2056

B.E., Second Semester
EEC-X01: Basic Electrical and Electronics Engineering
(Common with IT, CSE, MEC)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- A circuit consists of a 12 V DC source in series with a $4\ \Omega$ resistor connected to a network of two resistors: $6\ \Omega$ and $3\ \Omega$ in parallel. Determine the Thevenin equivalent voltage and resistance across the parallel combination terminals.
- Derive the condition for Maximum Power Transfer theorem.
- What is the purpose of Zener diode?
- Discuss different types of losses in a transformer.
- Draw a Common base and Common Emitter BJT.

(5x2)

UNIT - I

- II. a) Find the Maximum Power that can be delivered to the load resistor R_L of the circuit shown in the figure 1.

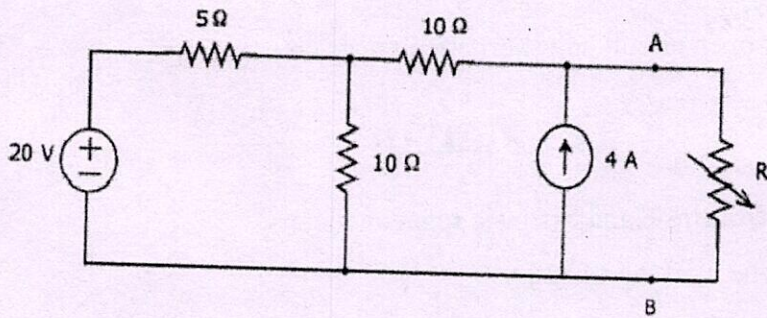


Figure 1: Maximum Power Transfer theorem

- b) Find the current through Galvanometer having resistance of 4 ohms in the bridge circuit as shown in figure 2. (2x5)

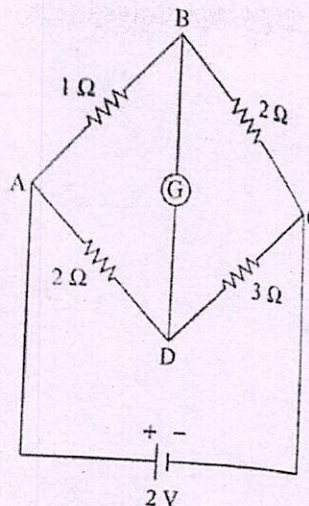


Figure 2: Current through Galvanometer

P.T.O.

(2)

- III. a) For the circuit shown in figure 3, apply Star - Delta Transformation technique to determine the equivalent resistance between the terminals AB.

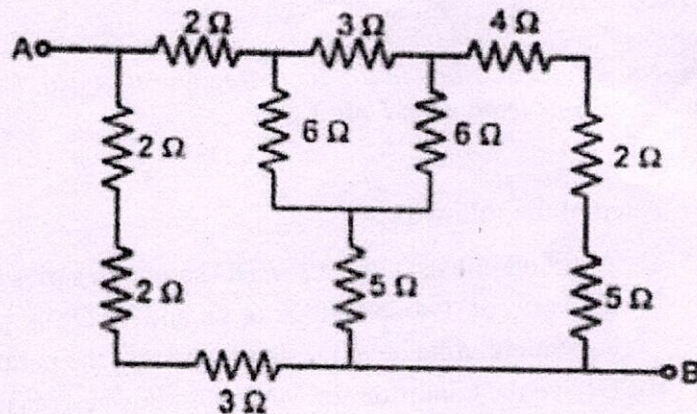


Figure 3: Star-Delta transformation

- b) Explain the two-wattmeter method for power measurement in 3-phase systems. (2x5)
- IV. a) Define and explain efficiency of a transformer and condition for maximum efficiency. (2x5)
- b) Describe open circuit and short circuit tests on transformers. (2x5)

UNIT - II

- V. a) Compare intrinsic and extrinsic semiconductors. (2x5)
- b) Explain the working of LED. (2x5)
- VI. a) Describe clipper circuits with examples. (2x5)
- b) Draw and discuss half-wave rectifier with waveform and output expression. (2x5)
- VII. a) Explain the construction and working of BJT. (2x5)
- b) How do a BJT help in signal amplification? (2x5)

x-x-x