

Code No: 53015

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, November/December - 2016

ELECTRICAL AND ELECTRONICS ENGINEERING

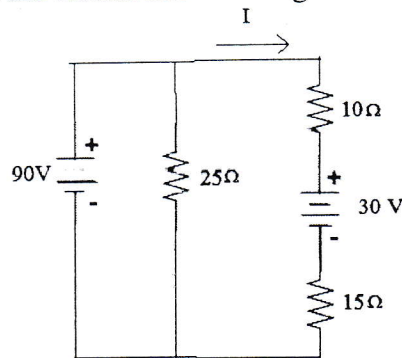
(Common to CE, ME, AME, PTE)

Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

- 1.a) Draw the circuit diagram for series connection of resistors and give the detailed analysis.
- b) Find the current 'I' in the circuit shown in figure. [8+7]



- 2.a) What is a Generator? Explain the principle of operation of DC generator in detail.
- b) A 220 V DC series motor is running at a speed of 1500 rpm and draws 50A. Calculate at what speed the motor will run when developing  $3/4^{\text{th}}$  of the torque. Total resistance of armature and field is  $0.2\Omega$ . Assume that the magnetic circuit is unsaturated. [8+7]
- 3.a) What are the types of losses in transformer? Explain in detail.
- b) A single-phase 200V/50V, 40 Hz transformer has a maximum core flux density of 1T and effective cross sectional area of  $0.025 \text{ m}^2$ . Determine the number of secondary turns. [8+7]

- 4.a) Define regulation in alternators. How it can be calculated.
- b) What are the conditions to be satisfied for the production of torque in induction motors? Explain [8+7]
- 5.a) What are the instruments that available to measure electric current? Explain their classification.
- b) What are the merits and demerits of permanent magnet moving coil instruments? Explain. [8+7]

- 6.a) Explain various applications of PN Junction diodes.
- b) The supply voltage of a single phase half wave rectifier with resistive load of  $50\Omega$  is 230V, 50 Hz. Assuming a voltage drop of 1V across the diode when it is turned ON, determine the RMS load voltage and RMS load current [5+10]

7.a) Explain in detail about the working of a PNP transistor.

[8+7]

b) Draw the structure and operation of an SCR.

R0

8.a) Explain the structure of Cathode Ray Tube in detail.

R0

b) How voltage magnitude and phase is measured using CRO? Explain.

[7+8]

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