

Code No: 114BD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

ELECTRICAL AND ELECTRONICS ENGINEERING

(Aeronautical Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

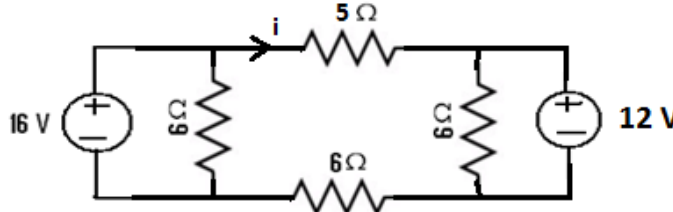
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

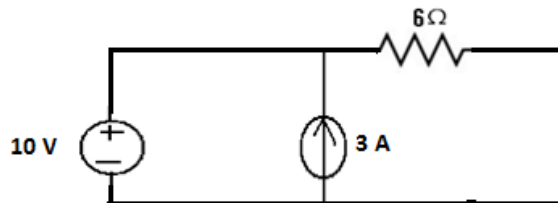
- 1.a) Give the formulae to convert star to delta connection. [2]
- b) Obtain the difference between PMMC and M.I. instruments. [3]
- c) What is the purpose of field windings? [2]
- d) Explain the significance of Back emf. [3]
- e) What is a step up transformer? [2]
- f) Write short notes on constructional details of an alternator. [3]
- g) What is the purpose of rectifier? [2]
- h) What are the applications of transistors? [3]
- i) Draw the circuit diagram of CRT. [2]
- j) Explain the applications of CRO. [3]

PART-B**(50 Marks)**

- 2.a) What is the working principle of moving coil instruments? Explain. [5+5]
- b) Find the current 'I' in the circuit shown in figure 1. [5+5]

**Figure: 1****OR**

- 3.a) What are the different types of errors in measuring instruments? Explain. [5+5]
- b) Calculate the power delivered or absorbed by the 10V and 3A sources in the circuit shown in figure 2. [5+5]

**Figure: 2**

- 4.a) Explain the principle of operation of DC Motor in detail with the help of necessary circuit diagram.
b) Explain how EMF is generated in DC generators with the help of necessary equations. [5+5]

OR

- 5.a) Draw the circuit diagram of a DC shunt generator and explain its applications.
b) What is a starter? Explain the working of a three-point starter. [5+5]
- 6.a) Explain in detail about the synchronous impedance method of determining the regulation.
b) A single-phase, ideal transformer of voltage rating 1000 V/200 V, 100 Hz produces a flux density of 3 T when its LV side is energized from a 50 V, 25 Hz source. Find the flux density produced in the core, if the HV side is energized from a 500 V, 50 Hz supply. [5+5]

OR

- 7.a) Discuss in detail about the working principle of induction motors.
b) The efficiency of a transformer is maximum at 85% of full load. Find the ratio of iron loss and full load copper loss. [5+5]
- 8.a) Draw the structure of a PN junction diode and explain different biasing conditions.
b) Explain different modes of operation of SCR with the help of its characteristics. [5+5]

OR

- 9.a) Draw the circuit diagram of a half-wave diode rectifier and explain its operation.
b) With the help of neat circuit and graphs, explain the output characteristics of an NPN transistor. [5+5]
- 10.a) Explain in detail about the deflection concept in CRO.
b) How is voltage magnitude and phase angle measured using CRO? Explain. [5+5]

OR

- 11.a) Explain in detail about the sensitivity of a CRT and derive the expression.
b) How is phase difference between two waveforms measured using CRO? Explain. [5+5]

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