

Code No: 114BD**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year II Semester Examinations, May - 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) Write the relationship between voltage, charge and capacitance. [2]
- b) What are the two essential requirements of moving systems? [3]
- c) Explain Critical Resistance. [2]
- d) Define Back emf. [3]
- e) Draw No Load Vector Diagram of a Single Phase Transformer. [2]
- f) Define synchronous reactance and synchronous impedance. [3]
- g) What is the peak inverse voltage of full wave rectifier? [2]
- h) Draw the symbol of NPN transistor [3]
- i) Name the fluorescent material used in CRO screen. [2]
- j) What are the applications of CRO? [3]

PART – B**(50 Marks)**

2. Explain the construction and working of moving coil instruments (PMMC Type) with neat sketch. Derive Torque equation. [10]

OR

3. A resistor of 10 ohm is connected in series with two resistors of 15 ohm arranged in parallel. What resistance must be shunted across the parallel combination so that the total current taken shall be 1.5A with 20V applied? [10]

- 4.a) A DC shunt Generator has the following data:
Load Current is 500 A, Rated Voltage is 450 V, Shunt field resistance (R_{sh}) 120 Ω , Armature resistance is 0.030 ohms. Find the Generated EMF.
- b) Develop the Torque equation of the DC Motor. [5+5]

OR

- 5.a) Explain Load Characteristics of a DC shunt Generator.
- b) Explain working principle of operation of DC Motor. [5+5]

- 6.a) Derive the EMF Equation of an Alternator. [5+5]
- b) What are the application of synchronous generator?

OR

- 7.a) Explain principle of working of three Phase Induction Motor.
- b) Calculate the distribution factor for 48 slots 4 pole single layer 3 phase winding.
- c) Explain the Slip-Torque characteristics of induction motor. [3+3+4]

- 8.a) Compare three different configurations of transistors.
b) Explain the operation of full wave rectifier and draw its output waveforms. List out its applications. [5+5]
- OR**
- 9.a) Discuss about the specifications of SCR.
b) Explain the operation of Zener diode and draw its characteristics. [5+5]
- 10.a) Draw the block diagram of Dual trace CRO and explain.
b) Write short notes on deflection and sensitivity of a CRT. [5+5]
- OR**
11. Draw the block diagram of Digital storage oscilloscope and explain. [10]

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