Code No: 113AP

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, May/June - 2015
ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE, ME, AME, PTE, CEE, MSNT)

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.

PART- A

(25 Marks)

1.a)	State and explain Ohms law.	[2M]
b)	Explain about the properties of series connection.	[3M]
c)	What are the different parts of DC Generator?	[2M]
d)	Explain the principle of operation of DC Generator.	[3M]
e)	What is synchronous impedance?	[2M]
f)	What are the different losses in a transformer?	[3M]
g)	Draw the circuit symbol of P-N Junction diode and explain.	[2M]
h)	Write short notes on NPN transistor.	[3M]
i)	Define deflection in a CRT.	[2M]
j)	List the applications of CRO.	[3M]

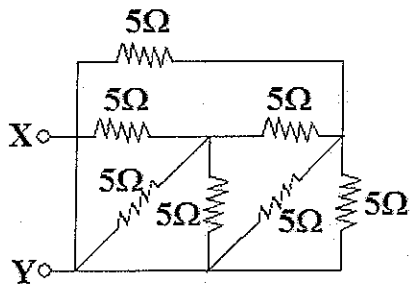
PART-B

(50 Marks)

2.a) Explain the principle of operation of PMMC instruments.
b) Explain the relationship between voltage and current in Inductor and capacitor. [6+4]

OR

3.a) Explain the differences between Moving iron and moving coil instruments from working principle point of view.
b) Calculate the equivalent resistance of the network across X-Y terminals as shown in figure. [4+6]



4.a) With neat sketch, explain the principle of operation of DC Motor.
b) Explain different types of DC Generators. [6+4]

OR

5.a) Write the torque equation of DC Motor and explain.
b) Draw the structure of three point starter and explain different parts. [5+5]

6.a) Explain the principle of operation of alternators.
b) Derive the condition for maximum efficiency of a transformer.
c) A 4 KVA, 400/200 V single phase transformer has 1% equivalent resistance. Determine the resistances referred to both LV and HV sides. [4+3+3]

OR

7.a) Explain the principle of operation of 3-phase Induction motor.
b) A 15 KVA, 300/100 V, 50 Hz single phase transformer has full load copper loss = 300 W and core loss = 100 W. At what KVA and load power factor the transformer should be operated for maximum efficiency? [6+4]

8.a) Draw the physical structure of PN junction diode during reverse bias and explain.
b) Explain different applications of diode.
c) Draw the SCR characteristics and explain. [3+4+3]

OR

9.a) Draw the physical structure of PN junction diode during forward bias and explain.
b) What is a rectifier? Explain the applications of rectifier.
c) Explain the applications of SCR. [3+4+3]

10.a) Draw the structure of Cathode Ray Tube and explain.
b) Explain in detail about frequency measurement in CRO. [6+4]

OR

11.a) Explain in detail about the current measurement in CRO.
b) Draw the control circuit of CRO and explain. [4+6]

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