Code No: 154AE

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, April/May - 2023
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE, ME, MMT, MIE)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

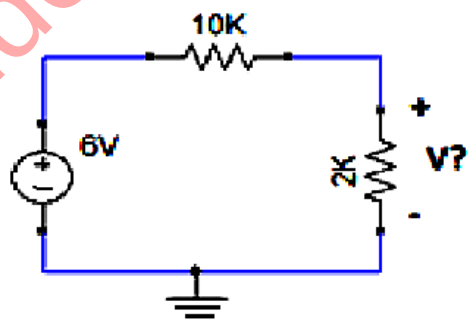
(25 Marks)

1.a)	Define active and passive elements.	[2]
b)	What is node in an electrical circuit? Draw example circuit and indicate nodes.	[3]
c)	What are the different types of wires?	[2]
d)	What is the function of fuse?	[3]
e)	What is the principle of DC generator?	[2]
f)	What are the losses in transformer and how to minimize?	[3]
g)	Define Ripple Factor.	[2]
h)	What is the need for rectifier?	[3]
i)	What do you mean by biasing FET?	[2]
j)	What are the types of BJT? Draw the symbols of each one.	[3]

PART – B

(50 Marks)

2.a) Determine the unknown voltage.



b) Derive Average and RMS values of AC voltage. [4+6]

OR

3.a) Determine the unknown current I through the node, which is connected with 3 more branches in which two branch currents are 4A and 6A flowing towards the junction and third branch current 2A is flowing away from node.

b) Analyze RL Series circuit excited by A.C. source with necessary diagrams and equations. [4+6]

4. Explain about various types of batteries and write important characteristics for batteries. [10]

OR

5. With necessary diagrams, explain various components of L.T. switch gear. [10]

6. Explain the construction details and working of single-phase transformer and list the applications of transformer. [10]

OR

7. Derive the EMF equation of DC generator. [10]

8. Explain the V-I Characteristics of p-n junction diode. [10]

OR

9. Explain the operation of full wave bridge rectifier with relevant circuit and Waveform. [10]

10. With neat diagrams, contrast CE, CB, and CC configurations of a BJT. [10]

OR

11. Explain the construction details, principle and working of FET. [10]

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