B. Tech. 1st Semester (Common for All Branches)

H-Scheme Examination, December-2025

BASIC OF ELECTRICAL & ELECTRONICS ENGINEERING

Paper : 25ESC-EE-101H

Time allowed : 3 Hours] *[Maximum marks : 50*

Note : Question No. 1 is compulsory. Attempt one question from each section.

1. Explain or define : 5×2=10

(a) Voltage division rule

(b) Current division rule

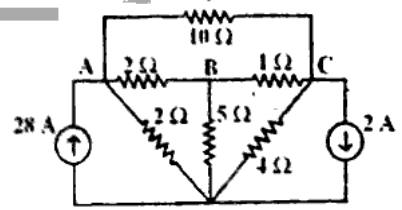
(c) FET

(d) XOR gate

(e) Transformer

Section-A

2. Using the method of model analysis, determine the current in various resistors of the network shown in figure. 10



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3. State and prove the venin theorem with the help of an example? 10

Section-B

4. Explain ideal and practical transformer with the phesor diagrams? 10

5. What are losses in transformer also write note in transformer tests? 10

Section-C

6. Explain operation of BJT also elaborate its different configuration? 10

7. Explain working of PN function diode with suitable diagrams. Discuss the formation of depletion region, energy band diagram, and behaviour of diode under forward and reverse bias. Also derive diode current equation and explain significance of each term? 10

Section-D

8. Explain the number systems used in digital electronics. Discuss binary, octal, decimal and hexadecimal number system with suitable examples. Also explain number conversion between there systems? 10

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9. What are logic gates? Explain the operation, truth tables, and symbols of basic logic gates (AND, OR, NOT) and universal gates (NAND, NOR). Also prove how NAND and NOR gates can be used to implement any Boolean function? 10

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