CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–I–Semester End Examinations (Regular) - December - 2025
ELECTRONIC DEVICES AND CIRCUITS
(CSE)

[Time: 3 Hours]   **[Max. Marks: 60]**

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

Part A is compulsory which carries 10 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   (10 Marks)

1. a) What is the function of a capacitor filter in a rectifier circuit?   [2M]
   b) Classify the Transistors with Symbols   [2M]
   c) Write the Amplification factors of Three Configurations   [2M]
   d) Define stability factor.   [2M]
   e) Write the Applications of LED   [2M]

PART-B   (50 Marks)

2. Explain with the help of a neat circuit diagram and waveform how a positive and negative clamper works.   [10M]

OR

3. Describe the construction and operation of a Bridge Full wave rectifier with a neat circuit diagram and waveform. And Derive expressions for the Full wave ripple factor.   [10M]

4. Define the hybrid (h) parameters of a transistor. Write the four h-parameters for the CB, CE, and CC configuration with h-parameter equivalent circuit.   [10M]

OR

5. Describe the input and output characteristics of a BJT in CE configuration with neat sketches. Compare CB, CE, and CC configurations   [10M]

6. Explain what is meant by thermal runaway in a transistor. What are its causes and how can it be prevented?   [10M]

OR

7. Define stability factor (S). Derive an expression for the stability factor for a Fixed Bias circuit.

8. Using h-parameters, derive expressions for voltage gain, input, and output resistances of CE and CC amplifier.   [10M]

OR

9. Explain the Principle and operation of Varactor Diode, SCR, Tunnel Diode   [10M]

10. Describe the structure and operation of an N-channel Enhancement-mode MOSFET.   [10M]

OR

11. With neat diagrams, explain fixed bias and self-bias techniques used for FETs. Compare their performance in terms of stability factor.   [10M]

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