Code No.: EC301PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Supply) - December- 2024
ELECTRONIC DEVICES AND CIRCUITS
(ECE)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 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.

<div align="center">PART-A</div>   (20 Marks)

1. a)	Define diffusion and transition capacitance.	[2M]
b)	List out the different types of clipper circuits.	[2M]
c)	Draw the symbols of NPN and PNP transistor.	[2M]
d)	Define rise time and fall time for a transistor.	[2M]
e)	Write the differences between BJT and FET.	[2M]
f)	List out the applications of photo diode.	[2M]
g)	Define an amplifier? List out the applications of amplifier.	[2M]
h)	What is the need of coupling and bypass capacitors in CE amplifier?	[2M]
i)	Draw the circuit diagram of common source JFET amplifier.	[2M]
j)	Write the classification of MOSFET along with their symbols.	[2M]

<div align="center">PART-B</div>   (50 Marks)

2.a) Explain PN junction diode in forward and reverse bias condition along with V-I characteristics. [7M]

 b) Explain about load line analysis. [3M]

<div align="center">OR</div>

3. Construct and explain the operation of half wave rectifier and derive the equation for ripple factor and efficiency. [10M]

4. Explain the circuit for a common base configuration with their input and output characteristics. [10M]

<div align="center">OR</div>

5. Explain in detail about self bias and derive its stability factor. [10M]

6. What are the types of breakdown mechanisms in a Zener diode? Explain the reverse bias characteristics of Zener diode. [10M]

<div align="center">OR</div>

7. Explain the construction and working principle of operation for N-channel JFET with its characteristics. [10M]

8. Draw the BJT hybrid models for CE, CB & CC configurations. [10M]

<div align="center">OR</div>

9. Draw the circuit diagram of a collector to base bias circuit of a CE amplifier and derive the expression for stability factor. [10M]

10. Explain the operation of Enhancement mode MOSFET in detail along with its characteristics. [10M]

<div align="center">OR</div>

11. Draw the circuit diagram of CS amplifier and explain its working operation. [10M]

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