

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY- GURAJADA VIZIANAGARAM
II B. Tech I Semester Supplementary Examinations, November – 2024
ELECTRONIC DEVICES AND CIRCUITS
(ECE)

Time: 3 hours**Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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| 1 | a) Explain Hall effect. What are its applications? | [7] |
| | b) Give the current component of PN junction diode and define diode current equation. | [7] |
| | (OR) | |
| 2 | a) Explain about Fermi level in intrinsic and extrinsic semiconductors. | [7] |
| | b) Draw the circuit diagram of an NPN junction transistor CE configuration and describe the static input and output characteristics. A | [7] |
| 3 | a) Derive the ripple factor and efficiency of a Half wave rectifier with show the wave form. | [7] |
| | b) Explain how the Zener diode is used for regulation purpose. | [7] |
| | (OR) | |
| 4 | a) Draw and explain the operation of LED | [7] |
| | b) Explain about Photodiode in detail | [7] |
| 5 | a) Draw the input output characteristics of NPN transistor in CE configuration and explain | [7] |
| | b) Draw and explain about MOSFET Construction and operation | [7] |
| | (OR) | |
| 6 | a) Explain the construction and working of n-channel JFET and draw the drain and transfer characteristics. | [7] |
| | b) Explain how transistor works as amplifier | [7] |
| 7 | a) What is the need for biasing what are the factors effecting the operating point in BJT? | [7] |
| | b) Explain how the self-bias establishes the stable operating point. | [7] |
| | (OR) | |
| 8 | a) Draw the fixed bias circuit and explain it. Write the draw backs of it. | [7] |
| | b) Explain the collector to base bias method along with circuit diagram and derive the stability factor for it | [7] |
| 9 | a) Explain about simplified common emitter hybrid model and derive the expressions for current gain, input impedance, voltage gain and output impedance. | [7] |
| | b) Draw and explain small signal model of CG and CS amplifier | [7] |
| | (OR) | |
| 10 | a) Compare different FET amplifiers. | [7] |
| | b) Draw the small signal low frequency h- parameter model of CE, CB, and CC configurations and compare voltage gain, current gain, input impedance, output impedance. | [7] |
