GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)
(Affiliated to Andhra University, Visakhapatnam)
B.Tech. - I Semester Regular Examinations, December / January – 2025
ELEMENTS OF ELECTRONICS ENGINEERING
(CSE-AI&ML)
1. All questions carry equal marks
2. Must answer all parts of the question at one place

Time: 3Hrs.   Max Marks: 70

UNIT-I
1. a. Explain the energy band diagrams of Intrinsic and extrinsic semiconductors   [7M]
   b. Discuss the properties of Intrinsic and extrinsic semiconductors.   [7M]

OR

2. a. Compare Conductor, Insulator and Semiconductor.   [7M]
   b. Explain Drift and Diffusion currents with necessary equations.   [7M]

UNIT-II
3. a. Discuss how a Zener diode is used as a voltage regulator?   [7M]
   b. Explain the Volt-Ampere characteristics of a Tunnel diode with the help of necessary diagrams.
                                                                                           [7M]

OR

4. a. Explain Efficiency and Ripple factor of Half Wave rectifier with necessary equations. [7M]
   b. Draw Full-Wave Bridge rectifier circuit and describe its operation.   [7M]

UNIT-III
5. a. Compare CE, CB, and CC Bipolar Junction Transistor (BJT) configurations.   [7M]
   b. Derive the expression for collector current in BJT CE configuration and draw its   [7M]
      output characteristics.

OR

6. a. Explain the need for biasing a transistor. Outline the operation of collector to base bias. [7M]
   b. Derive the expression for operating point of a voltage divider bias circuit.   [7M]

UNIT-IV
7. a. Draw and explain the operation of RC coupled amplifier.   [7M]
   b. Construct the small signal equivalent circuit of CE amplifier and derive the expression for
      A_I, A_V, R_I and R_O.   [7M]

OR

8. a. Discuss the application of transistor as an amplifier.   [7M]
   b. Construct the small signal equivalent circuit of CB amplifier and derive the expression [7M]
      for A_I, A_V, R_I and R_O.

UNIT-V
9. a. With the help of diagrams, outline the construction details of N-Channel JFET.   [7M]
   b. Draw and explain the transfer characteristics of N-Channel JFET.   [7M]

OR

10. a. Explain the construction of Enhancement Mode MOSFET.   [7M]
    b. Compare Enhancement mode and Depletion Mode MOSFETs.   [7M]