

Subject Code: 24EC11RC03

R-24

Reg No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)

(Affiliated to Andhra University, Visakhapatnam)

I B.Tech. - I Semester Regular Examinations, December / January – 2025

BASIC ELECTRONICS ENGINEERING

(Common to EEE)

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 basic construction and working operation of CRO. [7M]
b. Define inductance and its unit. Why Inductors are widely used in filters and essential in tuning circuits? [7M]
- OR
2. a. Explain about basic elements of Electronics i.e. Resistor, Inductor and Capacitor. [7M]
b. Compare Step-Up and Step-Down Transformer. [7M]

UNIT-II

3. a. Illustrate the operation of PN junction diode and plot its V-I Characteristics. [7M]
b. Describe the characteristics of intrinsic semiconductor and compare N-type and P-type semiconductors. [7M]
- OR
4. a. Explain the working of a Full-Wave Rectifier with necessary waveforms and derive the expression for the ripple factor. [7M]
b. Draw Zener diode voltage regulator circuit and explain how it can be used as voltage regulator. [7M]

UNIT-III

5. a. Explain how a transistor can be used as an amplifier. [7M]
b. What are the three operating regions of a transistor? Explain each briefly. [7M]
- OR
6. a. Analyze the input and output characteristics of a BJT in a Common Base (CB) configuration and discuss the effect of base width modulation. [7M]
b. Explain the difference between fixed bias and self-bias in transistor circuits. [7M]

UNIT-IV

7. a. Draw the characteristic curves of a JFET and explain the different regions (ohmic, saturation, and cut-off). [7M]
b. Describe the operation of common gate FET amplifier and derive the equation of voltage gain. [7M]
- OR
8. a. Compare BJT and FET. [7M]
b. Classify the biasing methods used for MOSFET. [7M]

UNIT-V

9. a. Derive voltage gain expression for inverting amplifier with the help of circuit diagram. [7M]
b. Explain how op-amp can be used in differential mode and common mode. [7M]
- OR
10. a. Explain the working principle of a basic operational amplifier and list its ideal and practical characteristics. [7M]
b. Interpret how an op-amp can be used as Integrator? Also derive the expression for the output. [7M]