



Question bank

Name of the Branch/Course	B.Tech-Common to all Branches
Subject	BASIC ELECTRICAL & ELECTRONICS ENGINEERING PART B: BASIC ELECTRONICS ENGINEERING
Subject Code	EE23AES101
Year & Sem	I Year & I Sem

Unit – 1

1	Discuss about the operation of PN junction diode both in Forward bias and Reverse bias conditions with suitable diagrams. Draw and explain the V-I characteristics of PN junction diode.
2	Draw and explain about the Input characteristics and output characteristics of a BJT in Common Emitter configuration with the help of circuit diagram.
3	Describe the Small-signal analysis of a Common Emitter amplifier and derive the expression for Voltage gain.
4	Draw and explain about the Input characteristics and output characteristics of a BJT in Common Base configuration with the help of circuit diagram.
5	Describe the operation of a Zener diode in Reverse bias conditions with suitable diagram. Explain Zener effect briefly.
6	Draw the symbol of Zener junction diode.
7	Define Integrated Circuit.
8	Define Current gain in Common Emitter configuration.
9	List any three disadvantages of Vacuum Tubes.
10	Write about SSI, MSI and LSI technologies.

Unit – 2

1	Draw the block diagram of a DC regulated power supply and explain each block with necessary waveforms.
2	Describe the operation of a Bridge type Full-wave rectifier circuit along with circuit diagram. Draw the input and output wave forms.
3	Draw the block diagram of a Public Address system and explain its working principle.
4	Draw the block diagram of an Electronic Instrumentation System and explain each block in detail.
5	Draw the circuit diagram of a RC coupled Common Emitter amplifier and explain its working principle. Also draw its frequency response.
6	What is a Rectifier circuit?
7	Draw the circuit diagram of a Zener voltage regulator circuit.
8	List any two advantages of Bridge type full-wave rectifier circuit.

Unit – 3

1	(a) Convert $(3287.5100098)_{10}$ into octal equivalent number system. (b) Convert $(6327.4051)_8$ into decimal equivalent number system. (c) Convert $(25.6875)_{10}$ into binary equivalent number system. (d) Convert $(247.36)_8$ into hexadecimal equivalent number system.
2	(a) Draw the Logic diagram of Half-adder circuit using basic gates. Explain its operation using Truth table. (b) Implement a XOR gate logic function using only NAND gates.
3	Draw the symbols of NOT, OR, AND, NOR, NAND, XOR and XNOR gates. Write their logical expressions and truth-tables.
4	Draw the Logic diagram of Full-adder circuit using basic gates. Explain its operation using Truth table.
5	Write the equivalent Binary code, BCD code, Excess-3 code and Gray code for the decimal numbers from [0-15].
6	What is the largest decimal value that can be represented by (a) a 8-bit binary, (b) a 16 bit binary number?
7	Which gates are called Universal gates and why are they so called?
8	Write the De-Morgan's Laws.
9	What is a Flip-flop.
10	What is a Counter.