B.E. III Semester Examination

BE-III/12(A)

2001(A)

228371

IT ENGINEERING

Course No. ECE-313

(Basic Electronics)

Time Allowed-3 Hours

Maximum Marks-100

Note :-   i)   Attempt any five questions.

ii)   All questions carry equal marks.

iii)   Use of calculator is permitted.

1. (a)   Discuss the working of capacitor input filter with appropriate waveforms.

(10)

b) (A half wave rectifier circuit is supplied from a 230 V, 50 Hz supply with a step down ratio of 3:1 to a resistive load of $10k\Omega$. The diode forward resistance is 75Ω while the transformer secondary resistance is 10Ω. Calculate maximum, average, rms, value of current, DC output voltage, efficiency of Rectification and Ripple factor. (10)

300

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2. Compare
   i)   Half - wave rectifier circuit with full-wave rectifier circuit
   ii)   Bridge circuit with center-tapped rectifier circuit.
   iii) Static and dynamic resistance of diode.
   iv)   Zener effect and Avalanche effect.   (20)

3. a)   Explain the working of Transistor as an amplifier.   (10)
   b)   Discuss D.C equivalent circuit model of BJT in various
        modes.   (10)

4. a)   Explain the Transistor Current components with generalized
        Transistor equation   (10)
   b)   Discuss various bias compensation techniques used in
        Transistors   (10)

5. Compare JFET voltage divider bias circuit with un byparsed Rs
   and byparsed Rs by Calculating its Z_{in}, Z_o and A_v (20)

6. a)   Discuss source-follower circuit of JFET.   (10)
   b)   Discuss the working of MOSFET with appropriate
        characteristics.   (10)

7. Discuss the comparator circuit with op-amp in detail with its
   characteristics.   (20)

8. a)   Explain the block diagram of op-amp and its various modes
        of operation.   (10)
   b)   Discuss the working of op-amp as a clamper.   (10)

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