
II B.TECH-IISEM Question Bank

Subject Name:: P&DC Branch:ECE- A

UNIT-1

1. a) What is meant by linear wave shaping (4M)
b) Show that the output of a differentiator circuit is derivative of the input. What are the assumptions to be made in the derivation? (6M)
2. a) Explain RL and RLCs circuits(4M)
b) Obtain the expression for percentage tilt P in the response of an RC high pass Network to a symmetrical square-wave(6M)
3. a) Discuss the application of an attenuator as a CRO probe.(5M)
b) Why a capacitor in a high-pass RC circuit is named as blocking capacitor.(5M)
4. a) Draw the low pass RC circuit and explain its working.. (4M)
b) Draw high-pass RC circuit. Explain its response to a square-wave input.(6M)
5. a) Derive the expression for rise-time of pulse waveform after passing through low-pass RC circuit(8M)
b) Define ringing circuit(2M)

UNIT-2

1. a) Explain how clipping at two independent levels can be achieved. .(5M)
b) Explain the operation of a diode comparator with a ramp input signal. .(5M)
2. a) Define clipper. Explain the positive peak clipper.(5M)
b) Draw a transistor clipper and explain its operation.(5M)
3. a) What is the difference between the output from a clipping circuit and a clamping circuit?
Explain with neat sketches.(5M)
b) State and prove the clamping circuit theorem?(5M)

4. a) What do you mean by positive clamping and negative clamping(5M) www.FirstRanker.com
- b) Explain about practical clamping circuit(5M)
5. Draw the circuit diagram of an Emitter-Coupled clipping circuit. Explain its operation with its transfer characteristic and necessary expressions. (10M)

UNIT-3

- 1.a)What is meant by multi vibrator? Explain the operation of fixed-bias multi vibrator. (6M)
- b) What are Commutating capacitors(4M)
2. a) Define the statement TRANSISTOR AS A SWITCH.(5M)
- b) Explain the diode switching times.(5M)
3. a) What is a Bistable circuit? What are the other names of a bistable multivibrator?(5M)
- b) What are the applications of a bistable multivibrator?(5M)
- 4 a) Explain the saturation parameters of Transistor and their variation with temperature(5M)
- b) Briefly explain the Triggering of Binary Circuits(5M)
- 5 a) Explain the stable stated voltages and currents in a fixed bias binary(5M) b)Explain the operation of Schmitt trigger (5M)

UNIT-4

1. a) Explain the operation of Monostable multivibrator. (5M)
- b) Explain how the Astable multi vibrator can be used as voltage to frequency converter. (5M)
2. a) For a mono stable multi vibrator calculate the input pulse width for the design values of $RC = 2$ $k\Omega$, $R_B = 10 k\Omega$, $C = 0.1 \mu F$, $V_{CC} = 10 V$, $V_{BE(sat)} = 0.8 V$. (7M)
- b) Explain the triggering in mono stable multi vibrator. (3M)
3. a) In an astable multivibrator, the base resistors are of $12.5 k\Omega$ and the capacitors are of $0.01 \mu F$

Determine the pulse repetition rate. (5M)

b) With the help of circuit diagrams explain the principle of a stable multivibrator (5M)

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4. a) Explain the application of Monostable Multivibrator.
- b) Draw the circuit diagram of astable multivibrator and explains its operation. (5M)
5. a) Derive the pulse width of Astable Multivibrator(5M)
- b) Explain how astable multivibrator can be used as Voltage to Frequency Converter. (5M)

UNIT-5

1. a) Why are time-base generators called a sweep generators and what are the applications of it? (5M)
- b) Define the sweep time and restoration time for time-base generators. (5M)
2. a) Define the terms slope error, displacement error and transmission error of time-base signal and derive the relation among them(8M)
- b) Mention the general features of time based signal. (2M)
3. a) Draw the circuit of a Boot strap sweep generator and explain its operation. Derive an expression for its sweep time. (5M)
- b) Explain with a circuit the working of a UJT sweep circuit and obtain the expressions for the intrinsic standoff ratio (η). (5M)
4. With the circuit diagram explain current time base generator. (10M)
5. a) Explain about the transistor Bootstrap time-base generation.
- b) What are the methods of generating a time-base wave form.

UNIT-6

1. a) Realize two-input AND & OR gates using diodes and explain their operation with the help of truth-tables. 5M
- b) Realize a three-input NOR gate using Resistor Transistor Logic and explain its operation with the help of truth-table. (5M)
2. a) Draw the circuit diagram of Nor logic using ECL and explain. (5M)
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- b) With the help of neat circuit diagram, explain the working of a CMOS inverter.(5M)

3. a) What are the applications of sampling gates (5M)
b) Explain unidirectional and bidirectional sampling gates(5M)
4. Explain four diode and six diode sampling gate (10M)
5. a) Explain the reduction of pedestal (5M)
b) Compare different logic families(5M)