

Reg. No. :

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

Question Paper Code : 91034

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Fourth Semester

Electrical and Electronics Engineering

EE 3402 — LINEAR INTEGRATED CIRCUITS

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the types of diffusion in IC fabrication process.
2. List the types of IC packaging.
3. Define Slew Rate in an op-amp.
4. Define Unity Gain Buffer.
5. What is a Log amplifier?
6. Mention the uses of Sample and Hold circuit.
7. What are the applications of Analog Multiplier?
8. List the different blocks of 555 timer.
9. What is a Switching Regulator?
10. List the applications of Instrumentation amplifier.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the different types of IC capacitor fabrication technique.
Or
(b) Discuss the Diffused and Thin film resistor fabrication with neat diagrams.
12. (a) Discuss the Adder-Subtractor combinational circuit with neat sketch.
Or
(b) Deduce the expression $V_o = 2V_1 - V_2 + 3V_3$ by op-amp circuit design.

13. (a) Discuss the working of a Positive clipper circuit with $V_{ref}=5V$ and without V_{ref} values where the input to the clipper is $V_i=20\sin\omega t$.

Or

- (b) Explain the R2R ladder and weighted resistor type DAC with neat sketch.
14. (a) Discuss the working of a Voltage Controlled Oscillator with neat diagram.

Or

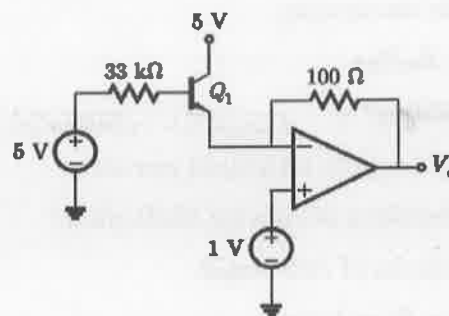
- (b) With neat sketch describe the working of Astable multi vibrator using 555 timer.
15. (a) Discuss the operation of IC 723 General Purpose voltage regulator with neat sketch.

Or

- (b) Explain the operation of Switching Regulator with neat sketch.

PART C — (1 × 15 = 15 marks)

16. (a) The transistor Q_1 is having the base-emitter voltage of $0.7V$ and $\beta = 99$. Find the output voltage V_o in the following ideal op-amp circuit.



Or

- (b) With neat sketch, explain the operation of log amplifier with neat expression.