Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 41032

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2024.

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. What is meant by epitaxial growth?

2. List the merits and demerits of diffused resistor.

3. Design an inverting amplifier having voltage gain of 2.

4. What is thermal drift?

5. What is the roll off rate for second order low pass filter?

6. What is the need for sample and hold circuit?

7. List the characteristics of 555 timer.

8. Mention the applications of PWM.

9. What are the limitations of three terminal voltage regulator?

10. Compare linear voltage regulator and switching voltage regulator.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the methods of introducing impurities into a silicon wafer.

Or

(b) Illustrate the fabrication methods of photovoltaic cell.

12. (a) Discuss the types of frequency compensation techniques used for operational amplifier.

Or

(b) Explain the operation and applications of Voltage to Current converter and Current to voltage converter.

13. (a) Explain the Instrumentation Amplifier in detail with neat sketches.

Or

(b) Explain the operation of op amp as (i) Clamper and (ii) Peak detector.

14. (a) Using the functional block diagram of IC 555, explain the operation of monostable multivibrator.

Or

(b) Draw the block diagram of IC 565 and explain its operation. Also derive the expression for lock in range.

15. (a) Explain the operation of Fixed Voltage regulator in detail with neat sketches.

Or

(b) Describe the operation and applications of AD623 instrumentation amplifier.

PART C — (1 × 15 = 15 marks)

16. (a) Design an astable multivibrator for an output frequency of 1 kHz and a variable duty cycle of 30% to 70%.

Or

(b) Design an adjustable voltage regulator (5 V to 15 V) with a short circuit current limit of 50 mA using a 723 voltage regulator.

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