575

October 2023

Time – Three hours
(Maximum Marks: 100)

[N.B. 1. Answer all questions under Part-A. Each question carries 3 marks.
2. Answer all the questions either (A) or (B) in Part-B. Each question carries 14 marks.]

PART – A

1. Define slew rate. What causes the slew rate?

2. Draw the circuit diagram of a comparator. Mention its applications.

3. Draw the pin diagram of IC 566.

4. What is meant by voltage regulation?

5. Convert $(175)_8$ into decimal and binary numbers.

6. Mention the laws of Boolean algebra.

7. Define parity bit and parity checker.

8. Define decade counter and mod-N counter.

9. What is called volatile memory? Give examples.

10. Define anti-fuse technology.

PART – B

11. (a) (i) Explain the simple equivalent circuit of Op-amp.(7)
    (ii) Explain virtual ground.(7)

(Or)

(b) (i) Explain Zero crossing detector using Op-amp. (7)
    (ii) Draw and explain Schmitt trigger using Op-amp. (7)

12. (a) With neat diagram, explain Astable multi vibrator using IC 555.

(Or)

(b) Explain how successive approximation type ADC can be used to convert analog signal into digital form with circuit diagram.

13. (a) Construct AND, OR, NOT, NOR and EX-OR gates by using only NAND gates.

(Or)

(b) Explain about half adder and full adder.

14. (a) Explain about multiplexer and De-multiplexer.

(Or)

(b) With the logic diagram, explain the operation of 4-bit synchronous up counter.

15. (a) Explain the working principle of bipolar RAM cell.

(Or)

(b) Explain the organization of ROM memory.

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