940   Register No.: [   ]

April 2024

<u>*Time – Three hours*</u>
(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.   Mention the characteristics of op-amp.

2.   Draw the pin diagram of op-amp IC 741.

3.   Define resolution and settling time of DAC.

4.   Mention the different types of IC voltage regulator.

5.   State De-Morgan's theorem.

6.   Construct the logic diagram for the equation Y=A'BC+ABC+AB'C.

7.   Define Asynchronous counter.

8.   Write the characteristic equation of JK flip flop.

9.   Differentiate static RAM and dynamic RAM.

10.   Expand DDR RAM, EEPROM and SDRAM.

[Turn over.....

PART – B

11. (a) (i) Explain zero crossing detector using op-amp. (7)
    (ii) Briefly explain about integrator.(7)

    (Or)

    (b) Explain about RC low pass active filter.

12. (a) With the diagram explain dual slope ADC.

    (Or)

    (b) With the diagram explain monostable multivibrator using IC555.

13. (a) Simplify the following function using K-map $F=\sum(3,4,5,6,7,8,9,12,13)$ and construct its logic diagram.

    (Or)

    (b) Design and Construct a full adder circuit.

14. (a) (i) What is the difference between a multiplexer and de-multiplexer? (4)
    (ii) Explain the operation of a 4 to 1 multiplexer.(10)

    (Or)

    (b) Define mod-N counter. With the logic diagram explain the operation of mod-7 counter.

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

    (Or)

    (b) Explain EPROM and EEPROM organization with necessary diagrams.