

# ERMSI Analog and Digital Electronics

135

REG. NO

OCTOBER 2021

Time: Three hours

Maximum Marks: 75

- Note:
1. Answer ALL the questions in PART-A (1 mark each)
  2. Answer any ONE question from each unit in PART-B (3 marks each)
  3. Answer any ONE question from each unit in PART-C (10 marks each)
  4. The question paper contains TWO Pages

## PART-A (1x10=10)

1. What is slew rate?
2. Define Inverting Amplifier.
3. State Demorgan's Theorem.
4. Convert  $47_{10}$  into Hexa.
5. What is propagation Delay?
6. What is De-multiplexer?
7. What is JK flip flop?
8. List out the use of shift register?
9. What is static memory?
10. Define DDR RAM.

## PART-B (3x5=15)

### UNIT-I

11. Draw the Pin diagram of 555 Timer IC.
12. List out the application of Op. Amp.

### UNIT-II

13. Given the truth table of Ex-OR Gate and Draw the symbol.
14. Draw the truth table for equations given below.  
(i)  $Y=AC+AB$ , (ii)  $Y=A(B+C)$

### UNIT-III

15. Subtract  $11000_2$  from  $10111_2$  using 1's complement method.
16. Explain Half Adder.

### UNIT-IV

17. Describe T flip flop.
18. Write short notes on ring counter.

### UNIT-V

19. Write the concept of Weighted resistor D/A converter.
20. Write about static memory.

## UNIT-I

21. Draw the functional block diagram of IC 555 Timer and explain the operation.
22. Explain (i) Voltage Follower.  
(ii) Zero crossing detector.

## UNIT-II

23. (i) Explain about NAND and NOR gates  
(ii) Simplify :  $XY + X'Z + YZ$ .
24. Simplify the given Boolean function using K-map  $F(A, B, C, D) = \Sigma 1,3,4,5,8,9,10, 13, 14, 15$  and draw the logic diagram with basic gates.

## UNIT-III

25. Explain about the following of half subtractor and full subtractor with logic diagram.
26. Explain 1 of 8 multiplexer with neat logic diagram.

## UNIT-IV

27. Explain : (i) RS flip-flop  
(ii) D flip – flop.
28. Explain with a neat diagram, 4 bit shift register with serial in and serial out.

## UNIT-V

29. Explain about analog to digital conversion using Successive Approximation method.
30. Draw and explain the R-2R ladder D/A converter.

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