

ECM33 - Analog and Digital Electronics

857

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. Convert the hexadecimal number A2.F5 to its equivalent binary number.
2. What are the symbols used in Boolean algebra?
3. Find the 2's complement of 1001 binary number.
4. How many input lines, address lines are in 1 of 8 multiplexer?
5. What is sequential logic circuit?
6. Draw the connection diagram of D-flip-flop.
7. What is virtual ground?
8. What is the significance of slew rate?
9. Write any three specifications of D/A Converter.
10. What is meant by settling time?

PART-B (3x5=15)

UNIT-I

11. Construct the logic circuit for the given Boolean expression.
 $Y = AB\bar{C} + \bar{A}\bar{B}C + A\bar{B}$
12. Write a short notes on NOR gate.

UNIT-II

13. Subtract 110011 from 111011 using 1's complement.
14. Write a few characteristics about CMOSL gate.

UNIT-III

15. Construct a MOD-3 counter.
16. Give the difference between static and dynamic memory.

UNIT-IV

17. What is op-amp? Draw the Schematic diagram of op-amp.
18. Write a characteristics of an ideal op-amp.

UNIT-V

19. Draw the circuit diagram sample and hold amplifier.
20. Define the term Accuracy & Resolution.

UNIT-I

21. (i) Explain about De-Morgan's theorems.
(ii) Simplify the boolean expression using boolean techniques.
 $Y = AB + A(B+C) + B(B+C)$
22. Simplify the given Boolean function by using k-map and to draw the simplified output.
 $F = \Sigma (0, 1, 4, 5, 6, 8, 9, 11, 12, 13, 14)$

UNIT-II

23. Explain the circuit of parity generator and checker.
24. (i) Explain the operation of 3 to 8 decoder.
(ii) Illustrate the term encoder.

UNIT-III

25. With a neat diagram explain JK master slave flip flop.
26. Draw the logic diagram of 4 bit shift register operates in serial in serial out mode.

UNIT-IV

27. (i) Write the important features of an instrumentation Amplifier.
(ii) With a neat diagram explain the op-amp used as inverting amplifier.
28. With a neat sketch explain the operation of differential Amplifier.

UNIT-V

29. Explain the operation of R-2R ladder DAC?
30. Explain the operation of successive approximation ADC?
