Roll No									

NATIONAL INSTITUTE OF TECHNOLOGY GOA

Farmagudi, Ponda, Goa, 403401

Programme Name: B.Tech

Max Marks: 50

Midterm-CS 250

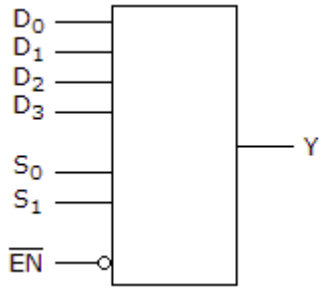
Time : 1 hr 30 minutes

Answer all questions

1.Represent Y(A,B,C,D) = $\sum_m(0,1,3,7,8,9,11,15)$ by Quine Mccluskey Minimization technique. (6)

2.. Convert $(19628.2)_{10}$ ⟶ $(\ldots\ldots?)_{16}$ (2)

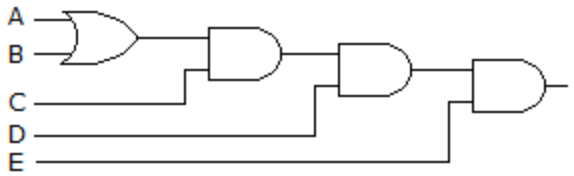
3. For the device shown here, let all D inputs be LOW, both S inputs be HIGH, and the input be LOW. What is the status of the Y output? (2)



a. Cannot be determined b. High c. Don't Care d. Low

4. $(5ACD.BB)_{16}$ ⟶ $(\ldots.?)_8$ (2)

5. Derive the Boolean expression for the logic circuit shown below: (2)



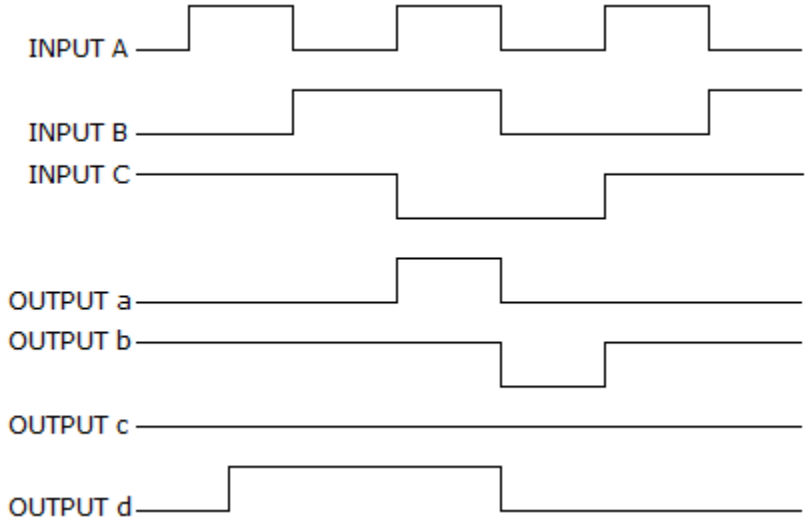
A. C(A+B) DE

B.[C(A+B) D +$\overline{E}$]

C.ABCDE

D.[[C(A+B) D] $\overline{E}$

6. For a three-input OR gate, with the input waveforms as shown below, which output waveform is correct? (2)



A. a B. b C. c D. d

7. Find the 7's and 8's complement in Octal System: $(67123)_8$? (2)

8. $(0110)_2 - (1010)_2$ (2)

9. Convert $(1001100)_2$ to Gray and also covert 01101011 Gray Code into Binary Code (1+1)

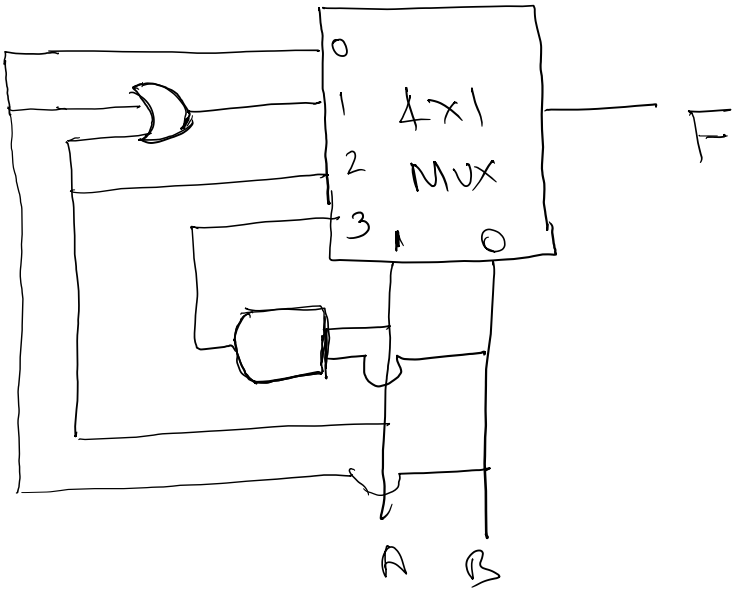
10. Identify base or radix for given number (i) 52/4 = 12 (ii) 24+17 = 40 (2)

11. 5-bit data 01101 is given. Represent given data in Hamming Code. (5)

12. Convert the $[3066.25]_{10}$ to IEEE 754 floating-point single precision 32-bit format. (4)

13. Write the ASCII character equivalent of the binary 100110110001111100111. (2)

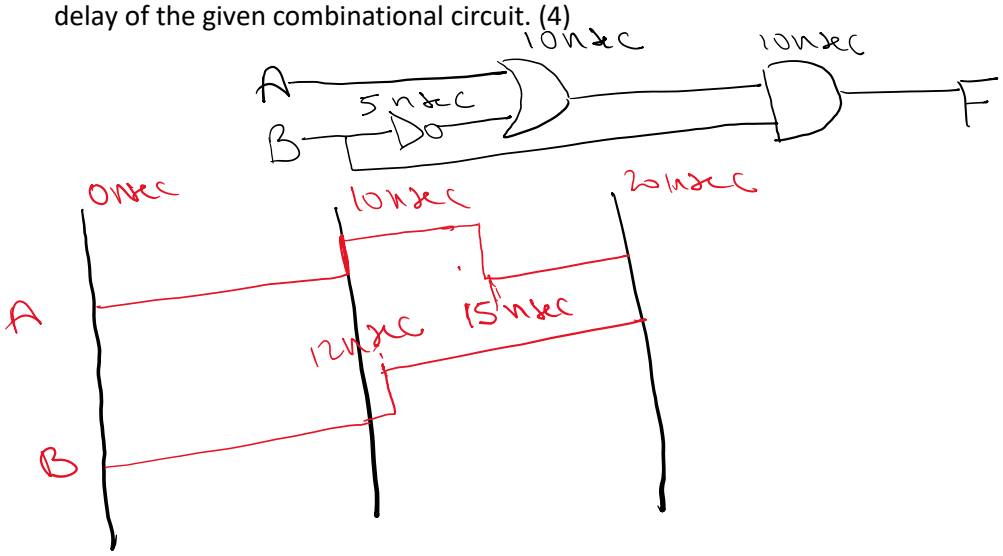
14. Given 4x1 MUX, find out the mean term of the following circuit. (2.5)



15. What is Coincidence Logic? Explain with example. (1.5)

16. Function F(A, B,C,D) =$\sum_m(0,2,6,9,11,13)$ make it by 4X1 MUX. (2.5)

17. In the given combinational circuit, (i) find out the output of the waveform and (ii) Find out the total delay of the given combinational circuit. (4)



18. Design Half Adder using Half Subtractor. (3.5)

19. Write some differences between Latch and Flipflop? (1)