

May '18 ADC paper solution

Date of exam: 02-06-2018

Q.1

a) convert $(13.078125)_{10}$ to binary

$$(13.078125)_{10} = (1101.000101)_2$$

ii) convert $(B73D)_H$ into octal

$$(B73D)_{16} = (133475)_8$$

iii) convert $(436)_8$ into hexadecimal

$$(436)_8 = (11E)_{16}$$

iv) convert $(845)_{10}$ into gray code

$$(845)_{10} = (1101001101)_2$$

$$= (1011101011)_{\text{gray}}$$

d) Implement full adder using 8:1 mux.

Truth table

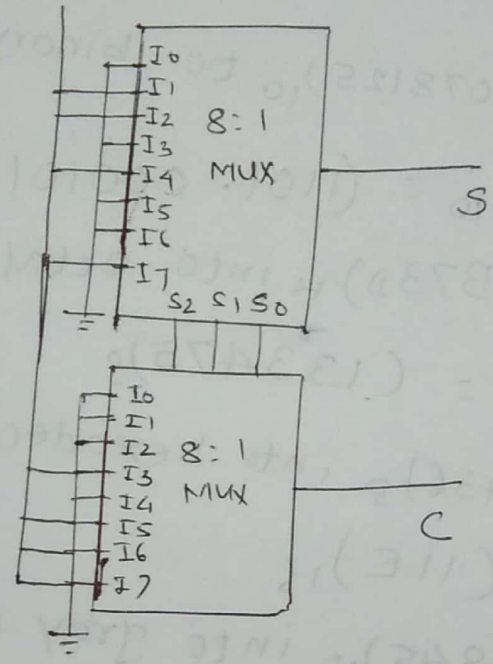
A	B	Cin	S	C
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

$$S = \sum m(1, 2, 4, 7)$$

$$C = \sum m(3, 5, 6, 7)$$

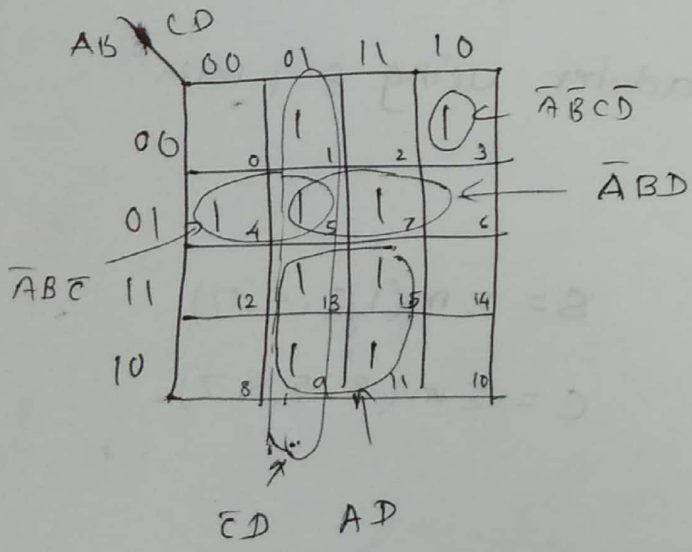
Logic diagram

logic 1



Q.3 b) Using k-map realize the following expression

$$Y = \sum m(1, 3, 4, 5, 7, 9, 11, 13, 15)$$



$$Y = \bar{A}\bar{B}\bar{C} + \bar{A}BD + \bar{C}D + AD + \bar{A}\bar{B}C\bar{D}$$