

ENCS2110

DIGITAL ELECTRONICS AND COMPUTER ORGANIZATION LABORATORY

Experiment 3: Encoders, Decoders, Multiplexers

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# Question 1:

1. Y = f (A, B, C) = AB’ + B’C

F (A, B, C) = AB’(C+C’) + (A+A’) B’C

 = AB’C +AB’C’ +AB’C +A’B’C

 = $Σ\left(1,4,5\right)$

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | Y |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 0 |

A

B

C

0

0

1

1

0

0

1

0

A2

A1

A0

D7 ABC

D6 ABC’

D5 AB’C

D4 AB’C’

D3 A’BC

D2 A’BC’

D1 A’B’C

D0 A’B’C’

# Question 2:

1. Y = A’BC + BC’

Y = A’BC + BC’ = A’BC + (A+A’)BC’

Y = A’BC + ABC’ + ABC’

Y = $Σ(2, 3, 6)$

1

A A2

B A1

C A0

Y0

Y1

Y2

Y3

Y4

Y5

Y6

Y7