**CS2100 Computer Organisation**

**AY2021/22 Semester 1**

**Assignment 3 Answer Sheet**

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| --- | --- |
| **FULL NAME:** | **TOH JIA-YIH RONALD** |
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| **TUTORIAL GROUP:** | **T02** |

**Question 0.** **Submission instructions (3 marks)**

|  |  |
| --- | --- |
| 1. Name your file with your student number (eg: AxxxxxxxY>.pdf). (1 mark) | **Y / N** |
| b. There is only one PDF file in the submission folder. (1 mark) | **Y / N** |
| c. Your submission has your tutorial group number, student number and name. (1 mark) | **Y / N** |

**Question 1. MSI Devices (16 marks)**

(a) *F*(*A*,*B*,*C*,*D*) = m(3, 5, 7) (b) Simplified POS expression for *G*.

***G*** = (A+B+D’)·(A+B+C’)

0

1

2

3

**2×4**

**DEC**

*S*1

*S*0

*EN*

B

C

OR

F

A

D

(c) *H*(*A*,*B*,*C*,*D*) = m(1, 3, 4, 5, 6, 7, 10, 13, 14, 15) (d) Simplified SOP expressions for *J* and *K.*

***J*** = A’·C

0

1

2

3

**4:1**

**MUX**

1

0

***K*** = B’·C

B

H

1

C

B

A

D

**Question 2. Sequential Circuit (14 marks)**

0/0

1/0

1/0

1

0

2

3

7

4

6

5

1/0

0/0

0/0

1/0

1/0

1/0

0/0

0/0

1/1

0/0

0/0

1/1

0/0

**Question 3. Pipelining (7 marks)**

1. [1 mark]

12+5-1 = 16

(b) [2 marks]

inst 4: +1

inst 5: +2

inst 7: +2

inst 8: +2

inst 9: +2

total: +9

Calendar

Description automatically generated

(c) [2 marks]

inst 4: +1

inst 5: +2

inst 7: +1

inst 8: +1

inst 9: +2

total: +7

Graphical user interface, application, table, calendar

Description automatically generated

s(d) [2 marks]

inst 4: +1

inst 7: +1

inst 8: +1

total: +3

Calendar

Description automatically generated