

Computer Systems Exam

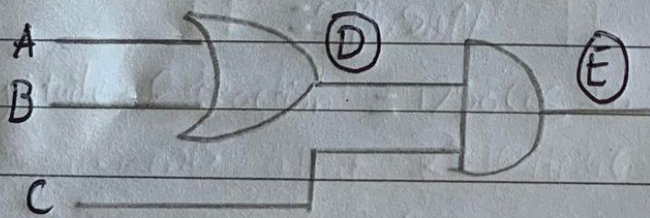
i)

1. AND Gate
2. OR Gate
3. Not Gate
4. XOR Gate
5. NAND Gate

ii) AND Gat Truth Table

A	B	Output
0	0	0
0	1	0
1	0	0
1	1	1

iii) Indicate the Stages at logic level 1



$$D = 1$$

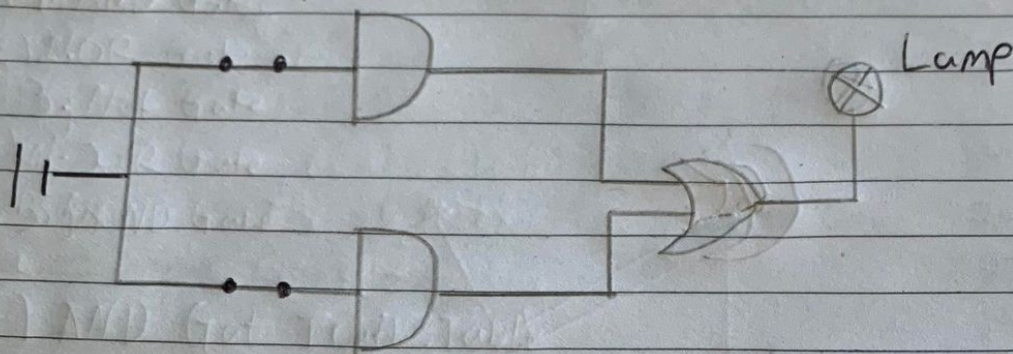
$$E = 1$$

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iv)

2.1

Intermediate Domestic 2 Way Switch



Q2

i)

a) 1101 0111

b) 0010 0101 512 256 128 64 32 16 8 4 2 1

2.2

1	1	0	1	0	1	1	1	A = 215
0	0	1	0	0	1	0	1	B = 37

Hex - binary

ii 6F

6 = 8 4 2 1

6F = 0110 1111

2.3

0 1 1 0

EA = 1110 1010

F = 1 1 1 1

EA

E = 1 1 1 0

A = 1 0 1 0

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Q2 Dec to Binary

iii)

$$a = 84$$

$$b = 246$$

256 128 64 32 16 8 4 2 1

1 0 1 0 1 0 0

1 1 1 0 1 1 0

$$a = 101010100$$

$$b = 11110110$$

3.1

Subtraction method

$$84 - 64 = 20$$

$$20 - 16 = 4$$

4

$$246 - 128 = 118$$

$$118 - 64 = 54$$

54

iv) Hex to decimal

$$a) A1 = 161$$

$$b) F5 = 245$$

D - H

0 0

1 1

2 2

3 3

4 4

5 5

6 6

7 7

8 8

9 9

10 10 A

11 11 B

etc

3.2

$$a = 10 \times 16^1 + 1 \times 16^0 = 161$$

$$b = 15 \times 16^1 + 5 \times 16^0 = 245$$

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Q2 6 bit number values 6 (64) 4.1

Vi) 64 128

base 2 Bytes in a kilobyte 8 256 4.2

Vii) 4 512

Q3 3D Specs

a) Intel core i7-10700 - 8 Core CPU

I have chosen this CPU as I ~~believe~~ believe that a 3D animations artist will need multiple cores to have multiple tasks running at the same time with optimum performance 4.3

b) 16 Gigs

OF Ram would be sensible for a 3D animator as 3D animation software uses ~~more~~ a large amount of memory dedicated to the programme 4.4

c) 2TB would be a suitable amount of storage for a Hard drive / SSD. as

A 3D animator / software designer will have a large quantity of work held on their PC 4.5

Q3

D) A 3D designer will need a; mouse, keyboard, 6+ usb3.0 ports, 2+ Hdmi ports, audio Jack, ethernet port.

All of this list is essential to any PC!!

E) A Suitable graphics Card would be a RTX 3070. I have chosen this as it is equipped with modern ray-tracing abilities and also support Dxt12 for the up to date graphics design. It also has 8GB of memory size which is optimum for a 3D ~~an~~ animations developer.

Computer System Overview

Q1

1.1 Data enters through Scanner Unit. The Data is the P.D. Information card which is entered the keyboard and then Information goes to the memory. This is where data stays including the P.D. card's info.

6.1

Alpha is a master computer in terms of data work.

Alpha is a Central Processing Unit. This is the P.D. master of everything present, all on the other P.D. computers will be entered data that they report.

6.2

Data and System Interaction

Q2

1.2 Data enters through Scanner Unit. The Data is

Information card

↑

↑

Alpha

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2.1	3
2.2	4
2.3	4
3.1	4
3.2	4
4.1	1
4.2	0
4.3	3
4.4	3
4.5	3
5.1	2
5.2	3
6.1	unable to read this ?
6.2	$46/80=57\%$