reflective learner, who recognises areas for development and is committed to personal improvement. An organised learner who always completes class work and homework to a very high standard.

Question **1**

Complete

Not graded

What do you understand by a pixel? (Just write 2 sentences)

A pixel is a dot of a single colour and combined with other pixels can make an image. The more pixels used to create an image the sharper the image is.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:20	Saved: A pixel is a dot of a single colour and combined with other pixels can make an image. The more pixels used to create an image the sharper the image is.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Complete**	

Question **2**

Correct

Mark 1.00 out of 1.00

The Boolean expression for a 3-input AND gate is (X is the output):

- a. X = A + B + C
- b. X = AB
- c. X = AB + C
- d. X = ABC ✔

Your answer is correct.

The correct answer is:
X = ABC

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:22	Saved: X = ABC	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **3**

Correct

Mark 1.00 out of 1.00

How do you make a NAND gate out of an AND gate using NOT gates (Inverters)?

- [x] a. Invert the output from the AND gate ✔
- [ ] b. Invert both the inputs to the AND gate
- [ ] c. Invert one of the inputs to the AND gate
- [ ] d. Invert both the inputs and output of the AND gate

Your answer is correct.

The correct answer is:
Invert the output from the AND gate

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:23	Saved: Invert the output from the AND gate	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **4**

Correct

Mark 1.00 out of 1.00

RGB can be written as a HEX number, what it the correct RBG value for the HEX colour #aabbcc?

- rbg(170, 180, 200)
- rgb(170, 187, 204) ✔
- rbg(10, 11, 12)
- rbg(1010, 1111, 1212)

Your answer is correct.

The correct answer is:
rgb(170, 187, 204)

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:26	Saved: rgb(170, 187, 204)	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **5**

Correct

Mark 3.00 out of 3.00

What is the output of the following, when A = 0, B = 0 and C = 1 :

$C(A \oplus B) + AB'(C' + C) + (B' \oplus C)$

a. 2

b. 10

c. 0 ✔

d. 1

Your answer is correct.

The correct answer is:
0

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:29	Saved: 0	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**3.00**

Question **6**

Correct

Mark 2.00 out of 2.00

What does it mean to "burn" a CD?

a. The process of deleting data from a disc. The idea is to "burn" the data so that it is permanently deleted.

b. The process of physically throwing a disc in a fire to get rid of it when it is not being used anymore.

c. To store data on a disc, whereby a laser heats up different parts of the disc via a chemical reaction, which causes bumps on the surface. ✔

d. To store data on a disc, whereby the friction from the spinning disc causes heat to build up on different parts of the disc, which imprints the data.

Your answer is correct.

The correct answer is:
To store data on a disc, whereby a laser heats up different parts of the disc via a chemical reaction, which causes bumps on the surface.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:29	Saved: To store data on a disc, whereby a laser heats up different parts of the disc via a chemical reaction, which causes bumps on the surface.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**2.00**

Question **7**

Correct

Mark 2.00 out of 2.00

Your friend, Jim, is shopping for a new television for his apartment. After Googling for a while, he found that many televisions nowadays are 4K TVs. Since you are a Computer Science student, Jim has asked you what it means for a TV to be "4K".

What do you tell him?

a. "4K" means that the TV costs R4000.

b. "4K" means that the maximum download speed of the smart TV's internet features is 4 Kilobytes per second.

c. "4K" refers to the physical size of the TV, whereby the height of the TV is 4000 mm.

d. "4K" refers to the resolution of the TV, whereby there are approximately 4000 horizontal pixels. ✔

Your answer is correct.

The correct answer is:
"4K" refers to the resolution of the TV, whereby there are approximately 4000 horizontal pixels.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:30	Saved: "4K" refers to the resolution of the TV, whereby there are approximately 4000 horizontal pixels.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**2.00**

Question **8**

Correct

Mark 1.00 out of 1.00

What makes up the images and videos on your computer screen and contains the colours red, green and blue.

- PNG
- CMYK
- Pixels ✔
- Halftone
- JPEG
- RGB

Your answer is correct.

The correct answer is:
Pixels

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:30	Saved: Pixels	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **9**

Correct

Mark 2.00 out of 2.00

Convert rbg(111, 151, 214) to HEX notation.

- #1af12e
- #6f97d6 ✔
- #f6796d
- #111151214

Your answer is correct.

The correct answer is:
#6f97d6

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:31	Saved: #6f97d6	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**2.00**

Question **10**

Correct

Mark 1.00 out of 1.00

Choose the scenarios where vector graphics would be most suitable

- [ ] a. Painting programs like MSPaint
- [x] b. Fonts ✔
- [x] c. .SVG files ✔
- [x] d. Graphic Design programs like Adobe Illustrator ✔
- [ ] e. .JPG files
- [ ] f. More widely accepted when file sharing
- [ ] g. Photos
- [x] h. Logo for a company ✔

Your answer is correct.

The correct answers are:
Logo for a company, Graphic Design programs like Adobe Illustrator,

Fonts,

.SVG files

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:32	Saved: Fonts ; .SVG files ; Graphic Design programs like Adobe Illustrator; Logo for a company	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **11**

Complete

Not graded

What do you understand by pixelating? (Just write 2 sentences)

To be able to express and image using pixels. Take an analog picture, break it up into a grid and assign each block on the grid a colour(or black, white, grey) which would then represent 1 pixel

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:35	Saved: To be able to express and image using pixels. Take an analog picture, break it up into a grid and assign each block on the grid a colour(or black, white, grey) which would then represent 1 pixel	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Complete**	

Question **12**

Correct

Mark 5.00 out of 5.00

Consider the two statements:

A = I will pass BCO

B = I will pass IAP

Match the following logical statements with the most appropriate description.

NOT A	I will not pass BCO ✔
NOT B	I will not pass IAP ✔
B **AND** A	I will pass both BCO and IAP ✔
A **OR** B	I will pass at least one of the courses (BCO or IAP) ✔
A **XOR** B	I will pass exactly one of the courses (BCO or IAP) ✔

Your answer is correct.

The correct answer is: **NOT** A → I will not pass BCO, **NOT** B → I will not pass IAP, B **AND** A → I will pass both BCO and IAP, A **OR** B → I will pass at least one of the courses (BCO or IAP), A **XOR** B → I will pass exactly one of the courses (BCO or IAP)

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:36	Saved: NOT A -> I will not pass BCO; NOT B -> I will not pass IAP; B AND A -> I will pass both BCO and IAP; A OR B -> I will pass at least one of the courses (BCO or IAP); A XOR B -> I will pass exactly one of the courses (BCO or IAP)	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**5.00**

Question **13**

Correct

Mark 1.00 out of 1.00

Suppose A is a binary value.
If A = 1 then what is NOT(A)?

Answer: 0 ✔

The correct answer is: 0

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:36	Saved: 0	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **14**

Correct

Mark 1.00 out of 1.00

Suppose A and B are binary values.

If A = 1 and B = 0 then what is: A **AND** B?

Answer: 0 ✔

The correct answer is: 0

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:36	Saved: 0	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **15**

Correct

Mark 1.00 out of 1.00

The output will be a "0" for any case when one or more inputs are zero in a(n):

- a. AND gate. ✔
- b. NAND gate.
- c. NOT gate.
- d. OR gate.

Your answer is correct.

The correct answer is:
AND gate.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:37	Saved: AND gate.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **16**

Correct

Mark 1.00 out of 1.00

If when passing a "0" as one of the inputs into a logic gate we always get a "1" as an output, the gate is a(n);

a. NOR gate.

b. NAND gate. ✔

c. OR gate.

d. AND gate.

Your answer is correct.

The correct answer is:
NAND gate.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:39	Saved: NAND gate.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **17**

Correct

Mark 1.00 out of 1.00

The logic gate that will have "1" at its output when any one of its inputs is "1" is a(n);

a. OR gate. ✔

b. AND gate.

c. NOR gate.

d. NOT gate.

Your answer is correct.

The correct answer is:
OR gate.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:40	Saved: OR gate.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **18**

Correct

Mark 1.00 out of 1.00

Suppose A and B are binary values.

If A = 0 and B = 1 then what is: A **OR** B?

Answer: 1 ✔

The correct answer is: 1

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:40	Saved: 1	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **19**

Correct

Mark 2.00 out of 2.00

Suppose A and B are a binary values.

If A = 0 and B = 1 then compute:

NOT(A **XOR** B) **NAND** A

Answer: 1

The correct answer is: 1

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:41	Saved: 1	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**2.00**

Question **20**

Correct

Mark 1.00 out of 1.00

Suppose A and B are a binary values.

If A = 0 and B = 1 then what is: A **XOR** B?

Answer: 1 ✔

The correct answer is: 1

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:41	Saved: 1	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **21**

Correct

Mark 1.00 out of 1.00

If I wanted to check if exactly 1 of the inputs were true, which logic gate would I use?

a. NAND

b. XOR ✔

c. OR

d. NOR

Your answer is correct.

The correct answer is:
XOR

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:42	Saved: XOR	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **22**

Correct

Mark 2.00 out of 2.00

Suppose A and B are a binary values.

If A = 0 and B = 1 then compute:

NOT(B **XOR** B) **NOR** A

Answer: 0 ✔

The correct answer is: 0

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:42	Saved: 0	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**2.00**

Question **23**

Correct

Mark 3.00 out of 3.00

Suppose A, B, and C are a binary values.

If A = 1, B = 1, and C = 1 then compute:

(NOT(A **NOR** B) **NOR** C) **XOR** (A **AND** B)

Answer: 1 ✔

The correct answer is: 1

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:43	Saved: 1	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**3.00**

Question **24**

Correct

Mark 2.00 out of 2.00

A universal gate is a logic gate which can be used to implement any other type of logic gate. Which of the following are universal gates?

a. XOR and AND gates.

b. NAND and XOR gates.

c. NOR and NAND gates. ✔

d. None of the above.

Your answer is correct.

The correct answer is:
NOR and NAND gates.

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:46	Saved: NOR and NAND gates.	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**2.00**

Question **25**

Correct

Mark 3.00 out of 3.00

What is the minimum number of transistors required to implement an **AND** gate?

Answer: 3 ✔

The correct answer is: 3

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:46	Saved: 3	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**3.00**

Question **26**

Correct

Mark 3.00 out of 3.00

What is the minimum number of transistors required to implement an **OR** gate?

Answer: 3 ✔

The correct answer is: 3

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:47	Saved: 3	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**3.00**

Question **27**

Correct

Mark 1.00 out of 1.00

What would be the resulting color from the following RGB color code?

(0,0,255)

Select one:

- a. Green
- b. Blue ✔
- c. Grey
- d. White
- e. Red
- f. Cyan
- g. Yellow
- h. Black
- i. Magenta

The correct answer is: Blue

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:47	Saved: Blue	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **28**

Correct

Mark 1.00 out of 1.00

What would be the resulting color from the following RGB color code?

(0,255,255)

Select one:

- a. Magenta
- b. Black
- c. Cyan ✔
- d. Yellow
- e. Grey
- f. Green
- g. Blue
- h. White
- i. Red

The correct answer is: Cyan

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:48	Saved: Cyan	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **29**

Correct

Mark 1.00 out of 1.00

What would be the resulting color from the following RGB color code?

(255,0,255)

Select one:

- a. Red
- b. Green
- c. Magenta ✔
- d. Black
- e. Grey
- f. Yellow
- g. White
- h. Cyan
- i. Blue

The correct answer is: Magenta

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:49	Saved: Magenta	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**1.00**

Question **30**

Correct

Mark 4.00 out of 4.00

An image is 1024 by 1024 pixels. How many bytes will we need to store an RBG color image if we use 3 bytes to store each RGB vector associated with each pixel? (Give you answer in bytes)

Answer: 3145728 ✔

The correct answer is: 3145728

Response history

Step	Time	Action	State	Marks
1	2/05/22, 09:14	Started	Not yet answered	
2	2/05/22, 09:51	Saved: 3145728	Answer saved	
3	**2/05/22, 09:53**	**Attempt finished**	**Correct**	**4.00**

◄ 5. COMS1015A/COMS1019A Gates & Circuits (FIRST HALF)

Jump to...

1. Gates and Circuits (Additional material by Mr. Brandon Ingram) ►