Started on	Tuesday, 15 October 2024, 9:15 AM
State	Finished
Completed on	Tuesday, 15 October 2024, 11:38 AM
Time taken	2 hours 22 mins
Marks	94.44/102.00
Grade	<b>92.59</b> out of 100.00
Information	
Information	

# **COMP101 Worksheet 2: Boolean Logic and Binary Notation**

This worksheet is an online quiz. Complete all the questions.

You may make **multiple** attempts -- your **highest** grade will be taken.

You are strongly encouraged to complete the questions by working on pen and paper and then transferring your answers into the quiz interface. Please resist the temptation to use online converters or calculators, except to check your answers.

Most of the questions have a correct answer and will be graded automatically when you complete your attempt.

For questions which ask you to enter an 8-bit binary number, please ensure you enter your answer **without spaces** and **with leading 0s**. For example:

- 01101110
- 1101110
- ×
- 0110 1110 💥

The correct answer is: 11100001

Question 1	
Correct	
Mark 2.00 out of 2.00	
Convert <b>126</b> from decimal to 8-bit binary.	
Answer: 01111110	•
The correct answer is: 01111110	
Question 2	
Correct	
Mark 2.00 out of 2.00	
Convert <b>225</b> from decimal to 8-bit binary.	
Answer: 11100001	•

Question 3 Correct	
Mark 2.00 out of 2.00	
Convert <b>226</b> from decimal to 8-bit binary.	
Answer: 11100010	<b>✓</b>
The correct answer is: 11100010	
Question 4	
Correct	
Mark 2.00 out of 2.00	
Convert <b>243</b> from decimal to 8-bit binary.	
Answer: 11110011	<b>~</b>
The correct answer is: 11110011	
Question 5	
Correct Mark 2.00 out of 2.00	
Mark 2.00 Out of 2.00	
Convert <b>60</b> from decimal to 8-bit binary.	
Answer: 00111100	<b>-</b>
The correct answer is: 00111100	
Question 6	
Correct  Mark 2.00 out of 2.00	
Walk 2.00 Out of 2.00	
Convert <b>01010111</b> from 8-bit binary to decimal.	
Answer: 87	•
The correct answer is: 87	

https://learningspace.falmouth.ac.uk/mod/quiz/review.php?attempt=24809&cmid=402864

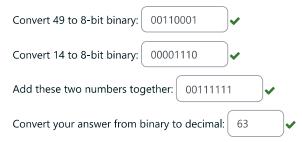
Question 7	
Correct  Mark 2.00 out of 2.00	
Convert <b>01001101</b> from 8-bit binary to decimal.	
Answer: 77	
The correct answer is: 77	
Question 8 Correct	
Mark 2.00 out of 2.00	
Convert <b>01011100</b> from 8-bit binary to decimal.	
Answer: 92	
The correct answer is: 92	
Question 9 Correct	
Mark 2.00 out of 2.00	
Convert 10111011 from 8-bit binary to decimal.	
Answer: 187	•
The correct answer is: 187	
Question 10	
Correct  Mark 2.00 out of 2.00	
Convert 10000001 from 8-bit binary to decimal.	
Answer: 129	•
The correct answer is: 129	

l/12/2024, 14:12	A.1.2 Worksheet 2: Low-Level Representations: Attempt review   Learning Space
Question 11	
Correct	
Mark 4.00 out of 4.00	
<b>Calculating 67 + 105</b> Convert 67 to 8-bit binary: 01000011	
Convert 105 to 8-bit binary: 01101001	
Add these two numbers together: 10101	100
Convert your answer from binary to decim-	al: 172
Question 12	
Correct	
Mark 4.00 out of 4.00	
Calculating 90 + 24  Convert 90 to 8-bit binary: 01011010  Convert 24 to 8-bit binary: 00011000  Add these two numbers together: 01110	010
Convert your answer from binary to decima	al: 114
Question 13	
Correct	
Mark 4.00 out of 4.00	
Calculating 98 + 91	
Convert 98 to 8-bit binary: 01100010	
Convert 91 to 8-bit binary: 01011011	
Add these two numbers together: 10111	101

Convert your answer from binary to decimal: 189

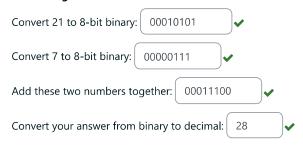
Question 14	
Correct	
Mark 4.00 out of 4.00	

#### Calculating 49 + 14



Question 15	
Correct	
Mark 4.00 out of 4.00	

#### Calculating 21 + 7



# Question 16 Correct Mark 5.00 out of 5.00

Complete the following truth table:

Α	В	С	A and B and not C
False	False	False	False
False	False	True	False
False	True	False	False
False	True	True	False
True	False	False	False
True	False	True	False
True	True	False	True ✔
True	True	True	False

Correct

Mark 5.00 out of 5.00

#### Complete the following truth table:

Α	В	C	A and not (B and not C)		
False	False	False	False		
False	False	True	False		
False	True	False	False		
False	True	True	False		
True	False	False	True		
True	False	True	True		
True	True	False	False		
True	True	True	True		

### Question 18

Partially correct

Mark 3.75 out of 5.00

#### Complete the following truth table:

Α	В	С	(A or not B) and (A or C)	
False	False	False	False	
False	False	True	False	
False	True	False	False	
False	True	True	False	
True	False	False	True	
True	False	True	True	
True	True	False	False	
True	True	True	True	

Partially correct

Mark 4.69 out of 5.00

Complete the following truth table:

Complete the following truth table:					
Α	В	С	D	A and not (B or not C) and (not A and D)	
False	False	False	False	False ✓	
False	False	False	True	False	
False	False	True	False	False	
False	False	True	True	False	
False	True	False	False	False 🗸	
False	True	False	True	False	
False	True	True	False	False 🗸	
False	True	True	True	False	
True	False	False	False	False 🗸	
True	False	False	True	False	
True	False	True	False	False	
True	False	True	True	True	
True	True	False	False	False	
True	True	False	True	False	
True	True	True	False	False 🗸	
True	True	True	True	False	

#### Question 20

Correct

Mark 10.00 out of 10.00

Show that **not (A and B) = not A or not B** by completing the following truth table:

A	В	not (A and B)	not A or not B
False	False	True	True
False	True	True	True
True	False	True	True
True	True	False	False

Complete

Not graded

Hence explain why the following two code snippets are equivalent:

```
if not (file_exists("a.txt") and file_exists("b.txt")):
    print("A required file is missing")

if not file_exists("a.txt") or not file_exists("b.txt"):
    print("A required file is missing")
```

they are the same because De Morgan's Law states they are.

#### Question 22

Incorrect

Mark 0.00 out of 1.00

Consider the following two code snippets:

```
if not (file_exists("a.txt") and file_exists("b.txt")):
    print("A required file is missing")

if not file_exists("a.txt") or not file_exists("b.txt"):
    print("A required file is missing")
```

Which of the following statements are correct?

- a. These statements do not mean the same thing because the second expression means 'NOT (A OR NOT B)'.
- b. These statements do not mean the same thing because there is only one way to express each Boolean condition.
- oc. These statements mean the same thing because the result of 'NOT( A AND B)' is the same as 'NOT A OR NOT B'.

Your answer is incorrect.

The correct answer is: These statements mean the same thing because the result of 'NOT( A AND B)' is the same as 'NOT A OR NOT B'.

Partially correct

Mark 5.00 out of 10.00

Show that **not (A or B) = not A and not B** by completing the following truth table:

Α	В	not (A or B) not A and not		
False	False	True	True	
False	True	True	True	
True	False	True	True	
True	True	False	False	

#### Question 24

Complete

Not graded

Hence explain why the following two code snippets are equivalent:

```
if x == 0 and y == 0:
    do_something()
else:
    print("Do nothing")

if x != 0 or y != 0:
    print("Do nothing")
else:
    do_something()
```

they are the same because De Morgan's law states that (and) and (not or) are the same

Correct

Mark 1.00 out of 1.00

Consider the following two code snippets:

```
if x == 0 and y == 0:
    do_something()
else:
    print("Do nothing")

if x != 0 or y != 0:
    print("Do nothing")
else:
    do_something()
```

When are these two code snippets the **same**?

- a. These code snippets are always the same ✔
- b. If only 'x' or 'y' are 0 not both
- oc. Both code snippets are never the same
- od. Only when both 'x' and 'y' are 0

Your answer is correct.

The correct answer is:

These code snippets are always the same

#### Question 26

Correct

Mark 10.00 out of 10.00

Show that (A and B) or (A and C) = A and (B or C) by completing the following truth table:

Α	В	С	(A and B) or (A and C)	A and (B or C)	
False	False	False	False	False	
False	False	True	False	False	
False	True	False	False	False	
False	True	True	False	False	
True	False	False	False	False	
True	False	True	True	True	
True	True	False	True	True	
True	True	True	True	True	

Complete

Not graded

Hence explain why the following two code snippets are equivalent:

```
if (type(x) == int and x > 7) or (type(x) == float and x > 7):
    print("Hello")

if (type(x) == int or type(x) == float) and x > 7:
    print("Hello")
```

they are the same because the distributive law states that they are the same.

# Question 28

Correct

Mark 10.00 out of 10.00

Show that (A or B) and (A or C) = A or (B and C) by completing the following truth table:

Α	В	С	(A or B) and (A or C)	A or (B and C)	
False	False	False	False	False	
False	False	True	False	False	
False	True	False	False	False	
False	True	True	True	True	
True	False	False	True	True	
True	False	True	True	True	
True	True	False	True	True	
True	True	True	True	True	

Question 29		
Complete		
Not graded		

Hence explain why the following two code snippets are equivalent:

they are the same because distributive law says they are.

■ Worksheet 2 Brief

Jump to...

Worksheet 2 Template Repo ►