

## Review Test Submission: Class Test 1

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Course	COS 284 S2 2022
Test	Class Test 1
Started	8/12/22 9:34 AM
Submitted	8/12/22 10:06 AM
Due Date	8/12/22 11:30 AM
Status	Completed
Attempt Score	10.5 out of 20 points
Time Elapsed	31 minutes out of 45 minutes
Results	All Answers, Submitted Answers, Correct Answers, Feedback, Incorrectly
Displayed	Answered Questions

## Question 1

0.5 out of 3 points



Consider the following additions of 3-bit binary numbers using two's complement arithmetic.

For each addition, indicate whether an overflow occurs (Y) or whether no overflow occurs (N).

$$101$$
$$+ 111$$
Overflow? (Y/N) **[A]**
$$100$$
$$+ 111$$
Overflow? (Y/N) **[B]**
$$011$$
$$+ 011$$
Overflow? (Y/N) **[C]**
$$010$$
$$+ 011$$
Overflow? (Y/N) **[D]**

111

+ 111

Overflow? (Y/N) **[E]**


001


+ 011

Overflow? (Y/N) **[F]**


Specified Answer for: A  Y

Specified Answer for: B  Y


Specified Answer for: C  N

Specified Answer for: D  N


Specified Answer for: E  Y

Specified Answer for: F  N


**Correct Answers for: A**

Evaluation Method	Correct Answer	Case Sensitivity
 <i>Contains</i>	N	


**Correct Answers for: B**

Evaluation Method	Correct Answer	Case Sensitivity
 <i>Contains</i>	Y	


**Correct Answers for: C**

Evaluation Method	Correct Answer	Case Sensitivity
 <i>Contains</i>	Y	


**Correct Answers for: D**

Evaluation Method	Correct Answer	Case Sensitivity
 <i>Contains</i>	Y	

**Correct Answers for: E**

Evaluation Method	Correct Answer	Case Sensitivity
 <i>Contains</i>	N	

**Correct Answers for: F**

Evaluation Method	Correct Answer	Case Sensitivity
 <i>Contains</i>	Y	

**Question 2**

3 out of 3 points




Convert the decimal number  $(1006)_{10}$  to base 6 using the division-remainder method.


Provide your answer by filling in the blanks below.


(Remember that the quotient of each step gets reused in the division of the subsequent step.)

Division	Quotient	Remainder
1006/6	[Q1]	[R1]
[D2]/6	[Q2]	[R2]
[D3]/6	[Q3]	[R3]
[D4]/6	[Q4]	[R4]


Overall result of the conversion:  $(1006)_{10} = ([O])_6$

Specified Answer for: Q1  167

Specified Answer for: R1  4

Specified Answer for: D2  167

Specified Answer for: Q2  27

Specified Answer for: R2  5


Specified Answer for: D3  27


Specified Answer for: Q3  4

Specified Answer for: R3  3


Specified Answer for: D4  4

Specified Answer for: Q4  0


Specified Answer for: R4  4

Specified Answer for: O  4354


#### Correct Answers for: Q1

Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	167	


#### Correct Answers for: R1

Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	4	


#### Correct Answers for: D2

Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	167	

#### Correct Answers for: Q2

Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	27	

#### Correct Answers for: R2

Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	5	

#### Correct Answers for: D3

Evaluation Method	Correct Answer	Case Sensitivity
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✔ Exact Match	27	
<b>Correct Answers for: Q3</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	4	
<b>Correct Answers for: R3</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	3	
<b>Correct Answers for: D4</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	4	
<b>Correct Answers for: Q4</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	0	
<b>Correct Answers for: R4</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	4	
<b>Correct Answers for: O</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	4354	

### Question 3

1 out of 1 points



A disc sold as a 1 Petabyte disc will typically accommodate  $2^x$  bytes where  $x =$  [50].

Specified Answer for: 50 ✔ 50

<b>Correct Answers for: 50</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	50	

### Question 4

1 out of 1 points



A file with a size of one kilobyte has a size of  $2^x$  bytes where  $x =$  [10].

Specified Answer for: 10 ✔ 10

<b>Correct Answers for: 10</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✔ Exact Match	10	

## Question 5

2 out of 3 points



Use Booth's algorithm to multiply the 5-bit binary values given below. The product will then be a 10-bit value.

Provide the correct value for each step of the algorithm, including all leading bits.

Also provide the final (binary) result of the multiplication.

You are required to express each possible subtraction by a corresponding addition according to the method presented in the lecture.

01011

× 00101

Step 1:

+ [1]

Step 2:

+ [2]

Step 3:

+ [3]

Step 4:

+ [4]

Step 5:

+ [5]

Final Result:

[6]

Specified Answer for: 1 10101

Specified Answer for: 2 01011

Specified Answer for: 3 10101

Specified Answer for: 4 01011

Specified Answer for: 5 0

Specified Answer for: 6 0110111

Correct Answers for: 1		
Evaluation Method	Correct Answer	Case Sensitivity
Exact Match	1111110101	
Correct Answers for: 2		
Evaluation Method	Correct Answer	Case Sensitivity
Exact Match	000001011	
Exact Match	00001011	
Exact Match	0001011	
Exact Match	001011	
Exact Match	01011	

✓ Exact Match	1011	
✓ Exact Match	0000010110	
<b>Correct Answers for: 3</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✓ Exact Match	11110101	
✓ Exact Match	1111010100	
<b>Correct Answers for: 4</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✓ Exact Match	0001011	
✓ Exact Match	001011	
✓ Exact Match	01011	
✓ Exact Match	1011	
✓ Exact Match	0001011000	
<b>Correct Answers for: 5</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✓ Exact Match	000000	
✓ Exact Match	0000000	
✓ Exact Match	00000000	
✓ Exact Match	000000000	
✓ Exact Match	0000000000	
✓ Exact Match	00000	
✓ Exact Match	0000	
✓ Exact Match	000	
✓ Exact Match	00	
✓ Exact Match	0	
<b>Correct Answers for: 6</b>		
<b>Evaluation Method</b>	<b>Correct Answer</b>	<b>Case Sensitivity</b>
✓ Exact Match	0000110111	
✓ Exact Match	000110111	
✓ Exact Match	00110111	
✓ Exact Match	0110111	
✓ Exact Match	110111	

## Question 6

0 out of 1 points



The largest decimal value that can be represented using a 7-bit binary number in ones's complement notation is [63].

Specified Answer for: 63 ✖ 0111111

**Correct Answers for: 63**

Evaluation Method	Correct Answer	Case Sensitivity
✔ Exact Match	63	
✔ Exact Match	+63	

### Question 7

0 out of 1 points



Why can the ENIAC not be considered to be a Von Neumann computer?

Selected Answer: ✖ It did not have memory.

Answers: It did not have an IO unit.

It did not have a CPU.

It did not have an ALU.

It did not have memory.

✔ It did not use the notion of a stored program.

### Question 8

0 out of 2 points



Complete the following sentence:

A bus operating at [A] MHz has a cycle time of 1.25 nanoseconds.

Round your answer to a whole number without decimal places.

Specified Answer for: A ✖ 22

#### Correct Answers for: A

Evaluation Method	Correct Answer	Case Sensitivity
✔ Exact Match	800	

### Question 9

3 out of 3 points



Convert the base 9 number  $(1337)_9$  to decimal by filling in the blanks below.

$$(1337)_9 = [A] \times [B]^3 + [C] \times [D]^2 + [E] \times [F]^1 + [G] \times [H]^0 = ([I])_{10}$$

(Note that  $^3$  denotes the exponent 3 etc.)

Specified Answer for: A ✔ 1

Specified Answer for: B ✔ 9


Specified Answer for: C ✔ 3

Specified Answer for: D ✔ 9










Specified Answer for: E ✔ 3

Specified Answer for: F ✔ 9

Specified Answer for: G ✔ 7

Specified Answer for: H  9

Specified Answer for: I  1006

Correct Answers for: A		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	1	
Correct Answers for: B		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	9	
Correct Answers for: C		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	3	
Correct Answers for: D		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	9	
Correct Answers for: E		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	3	
Correct Answers for: F		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	9	
Correct Answers for: G		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	7	
Correct Answers for: H		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	9	
Correct Answers for: I		
Evaluation Method	Correct Answer	Case Sensitivity
 Exact Match	1006	

## Question 10

0 out of 2 points



Complete the following sentence:

A bus operating at 566MHz has a cycle time of [1] nanoseconds.

Round your answer to a number with two decimal places.

Specified Answer for: 1  32.00

Correct Answers for: 1		
Evaluation Method	Correct Answer	Case Sensitivity



✔ Contains	1.77
✔ Contains	1.76
✔ Contains	1,77
✔ Contains	1,76

Thursday, November 24, 2022 8:38:27 AM SAST

← OK