COS 284 S2 2023   Tests and Exams   Review Test Submission: Class Test 1

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Course	COS 284 S2 2023
Test	Class Test 1
Started	8/11/23 11:22 AM
Submitted	8/11/23 12:07 PM
Due Date	8/11/23 1:30 PM
Status	Completed
Attempt Score	17 out of 20 points
Time Elapsed	45 minutes out of 45 minutes
Results Displayed	All Answers, Submitted Answers, Correct Answers, Feedback, Incorrectly Answered Questions

Question 1   0 out of 2 points

Complete the following sentence:

A bus operating at **[233]** MHz has a cycle time of 4.29 nanoseconds.

Round your answer to a whole number without decimal places.

Specified Answer for: 233 ❌ 233.1

Correct Answers for: 233		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ Exact Match	233	

Question 2   3 out of 3 points

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

$(1337)_9 = $ **[A]×[B]**^{3} + **[C]×[D]**^{2} + **[E]×[F]**^{1} + **[G]×[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 3   4 out of 4 points

Fill in the blanks such that the calculation correctly implements a conversion from decimal to base 5 via the subtraction method.

[A]	
- 125	$= 5^3 \times$ [E]
[B]	
- 0	$= 5^2 \times$ [F]
[C]	
- 5	$= 5^1 \times$ [G]
[D]	
- 4	$= 5^0 \times$ [H]
0	

Hint: You should fill in the blanks from bottom to top.

Specified Answer for: A   ✅ 134

Specified Answer for: E   ✅ 1

Specified Answer for: B   ✅ 9

Specified Answer for: F   ✅ 0

Specified Answer for: C   ✅ 9

Specified Answer for: G   ✅ 1

Specified Answer for: D   ✅ 4

Specified Answer for: H   ✅ 4

Correct Answers for: A		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ Exact Match	134	
✅ Exact Match	-134	
✅ Exact Match	- 134	
Correct Answers for: E		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ Exact Match	1	
✅ Exact Match	-1	

✅ *Exact Match*   - 1

Correct Answers for: B

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Exact Match*	9	
✅ *Exact Match*	-9	
✅ *Exact Match*	- 9	

Correct Answers for: F

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Exact Match*	0	
✅ *Exact Match*	-0	
✅ *Exact Match*	- 0	

Correct Answers for: C

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Exact Match*	9	
✅ *Exact Match*	-9	
✅ *Exact Match*	- 9	

Correct Answers for: G

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Exact Match*	1	
✅ *Exact Match*	-1	
✅ *Exact Match*	- 1	

Correct Answers for: D

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Exact Match*	4	
✅ *Exact Match*	-4	
✅ *Exact Match*	- 4	

Correct Answers for: H

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Exact Match*	4	
✅ *Exact Match*	-4	
✅ *Exact Match*	- 4	

Question 4

3 out of 3 points

Fill in the blanks such that the calculation correctly implements the conversion from decimal to base 4 via the division remainder method.

Divisor	Quotient resp. Dividend	Remainder
4	[A]	0
4	[B]	0
4	[C]	2
4	[D]	2
4	[E]	0
4	[F]	1
4	0	

Hint: You should fill in the blanks from bottom to top.

Specified Answer for: A   ✅ 1184

Specified Answer for: B   ✅ 296

Specified Answer for: C   ✅ 74

Specified Answer for: D   ✅ 18

Specified Answer for: E   ✅ 4

Specified Answer for: F   ✅ 1

Correct Answers for: A		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	1184	

Correct Answers for: B		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	296	

Correct Answers for: C		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	74	

Correct Answers for: D		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	18	

Correct Answers for: E		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	4	

Correct Answers for: F		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	1	

Question 5

2 out of 2 points

The largest decimal value that can be represented using a 7-bit binary number in ones's complement notation is **[1]**.

Specified Answer for: 1   ✅ 63

Correct Answers for: 1		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✅ *Exact Match*	63	

Question 6

3 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	✅	N
Specified Answer for: B	✅	Y
Specified Answer for: C	✅	Y
Specified Answer for: D	✅	Y
Specified Answer for: E	✅	N
Specified Answer for: F	✅	Y

Correct Answers for: A

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Contains*	N	

Correct Answers for: B

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Contains*	Y	

Correct Answers for: C

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Contains*	Y	

Correct Answers for: D

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Contains*	Y	

Correct Answers for: E

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Contains*	N	

Correct Answers for: F

Evaluation Method	Correct Answer	Case Sensitivity
✅ *Contains*	Y	

Question 7

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 ❌ 1111110100

Specified Answer for: 2 ✅ 000001011

Specified Answer for: 3 ❌ 00001011

Specified Answer for: 4 ✅ 0001011

Specified Answer for: 5 ✅ 000000

Specified Answer for: 6 ✅ 0000110111

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	
Correct Answers for: 3		

Evaluation Method	Correct Answer	Case Sensitivity
✅ Exact Match	11110101	
✅ Exact Match	1111010100	

Correct Answers for: 4

Evaluation Method	Correct Answer	Case Sensitivity
✅ Exact Match	0001011	
✅ Exact Match	001011	
✅ Exact Match	01011	
✅ Exact Match	1011	
✅ Exact Match	0001011000	

Correct Answers for: 5

Evaluation Method	Correct Answer	Case Sensitivity
✅ 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	

Correct Answers for: 6

Evaluation Method	Correct Answer	Case Sensitivity
✅ Exact Match	0000110111	
✅ Exact Match	000110111	
✅ Exact Match	00110111	
✅ Exact Match	0110111	
✅ Exact Match	110111	

Tuesday, November 28, 2023 1:19:07 PM SAST

← **OK**