Pre-Lecture 6

Due Sep 9 at 9am **Points** 11 **Questions** 8 **Available** until Sep 9 at 9am
Time Limit None **Allowed Attempts** 2

Instructions

Take this quiz ***after you have watched the required videos and/or read the associated sections of the textbook***. See **Lecture 6: Array allocation and access**.

You may attempt this quiz twice. Incorrect responses are marked after each attempt. Correct answers are revealed at the start of class for this lecture.

Carefully note the deadline for responses. Submissions are not accepted after the deadline, and there is no grace period.

This quiz was locked Sep 9 at 9am.

Attempt History

	Attempt	Time	Score
KEPT	**Attempt 2**	3 minutes	9 out of 11
LATEST	**Attempt 2**	3 minutes	9 out of 11
	Attempt 1	6,082 minutes	8 out of 11

Score for this attempt: **9** out of 11
Submitted Sep 8 at 9:46pm
This attempt took 3 minutes.

Question 1 — 1 / 1 pts

Consider the following C code fragment:

```
short arr[] = { 2, 4, 6, 8, 10, 12, 14, 16 };
short* p1 = arr + 10;
short* p2 = arr + 6;
```

Give the ***exact*** value of the following expression as an integer.

```
*(arr + (p1 - p2))
```

(NOTE: You are permitted to check your answers by writing a C program; however, in order to prepare for exams, first attempt a solution without doing so.)

Correct!

10

orrect Answers

10

Question 2

1 / 1 pts

Consider the following C program:

```
void update(int arr[2]) {
  arr[4]++;
}

int main() {
  int x[] = { 0, 0, 0, 0, 0 };
  update(x);
  printf("%d,%d\n", x[2], x[4]);
}
```

What is printed?

(NOTE: You are permitted to check your answers by writing a C program; however, in order to prepare for exams, first attempt a solution without doing so.)

- Nothing, there is at least one compiler error in the program.
- Nothing, there is an error during execution.
- 0,0

Correct!

- 0,1
- 1,0

1,1

Question 3

0 / 1 pts

Provide the ***exact*** C statement to make the identifier ***word*** an alias type for a character pointer. (Avoid using any unnecessary blank spaces in your answer.)

'ou Answered

typedef *char word;

orrect Answers

typedef char* word;

typedef char *word;

typedef char * word;

Question 4

2 / 2 pts

Consider the following C function definition:

```
long g(long arr[], int n) {
  return arr[n + 3];
}
```

Fill in the blanks to complete this x86 instruction so that it is a correct translation of the body of function g:

movq 24 (%rdi,%rsi, 8), %rax

Answer 1:

Correct!

24

orrect Answer

0x18

Answer 2:

Correct! 8

orrect Answer 0x8

Question 5

0 / 1 pts

Consider these C statements:

```
typedef int uid_t[8];
uid_t student_arr[100];
```

Provide a single C statement to create ***exactly*** the same array, with the same name, without using the typedef. (Avoid using any unnecessary blank spaces in your answer.)

'ou Answered

student_arr[100][8];

orrect Answers

int student_arr[100][8];

int student_arr [100][8];

int student_arr [100] [8];

Question 6

2 / 2 pts

Consider the following C code fragment:

```
int arr[20][30];
int* ptr = &arr[3][29];
```

The expression *(ptr + 4) is equivalent to arr[4][3]. Use values that are within the range of their corresponding dimensions in the declaration of the array.

Question 7

1 / 1 pts

Consider the following C code fragment:

```
int main() {
  int arr[20][30];
  f(arr);
}
```

Which of the following function headers may be used to define f? (Select all that apply.)

- [ ] void f(int arr[][])
- [ ] void f(int arr[20][])
- [x] void f(int arr[][30])

Correct!

- [x] void f(int arr[20][30])

Correct!

- [ ] None of the provided headers may be used.

Question 8

2 / 2 pts

Consider the following C code in which M and N are constants declared with #define.

```
int arr1[M][N];
int arr2[N][M];

void scale(int i, int j, int s) {
  arr1[i][j] *= s;
  arr2[j][i] *= s;
}
```

The following is the translation of scale's function body to x86 instructions:

```
        leaq    (%rdi,%rdi,8), %rax
        addq    %rsi, %rax
        movl    %edx, %ecx
        imull   arr1(,%rax,4), %ecx
        movl    %ecx, arr1(,%rax,4)
        leaq    (%rsi,%rsi,4), %rax
```

```
addq    %rax, %rdi
imull   arr2(,%rdi,4), %edx
movl    %edx, arr2(,%rdi,4)
```

What are the values of M and N?

M = 5

N = 9

Answer 1:

Correct!

5

Answer 2:

Correct!

9

Quiz Score: **9** out of 11