## CSPB 2400 - Park - Computer Systems

<u>Dashboard</u> / My courses / <u>2241:CSPB 2400</u> / <u>5 February - 11 February</u> / <u>Reading Quiz - 3.7</u>

Started on	Saturday, 10 February 2024, 10:01 PM
State	Finished
Completed on	Saturday, 10 February 2024, 10:12 PM
Time taken	11 mins 14 secs
Marks	4.00/5.00
Grade	<b>8.00</b> out of 10.00 ( <b>80</b> %)

	-
Ougetion	11

Correct

Mark 0.50 out of 0.50

The x86-64 calling convention passes arguments to procedures in registers. In what registers are the first two arguments passed?

Select one or more:
a. %r12
b. %r14
c. %rax
d. %rsi 💙
e. %r11
f. %r10
g. %rbx
h. %r8
i. %r13
j. %r15
k. %rdi 🕶
I. %rdx
m. %rcx
n. %rsp
o. %rbp
p. %r9
Your answer is correct.

	2
Ouestion	Z

Correct

Mark 0.50 out of 0.50

Select one or more:

a. %r15
b. %rdi
c. %rbp
d. %r13
e. %rbx
f. %r10
g. %rsi
h. %rdx
i. %r12
j. %rax
k. %r11

The x86-64 calling convention uses two registers to manage procedure calls. Select the register that is always used for procedure calls.

Your answer is correct.

I. %r8

m. %r14

n. %r9

o. %rcx

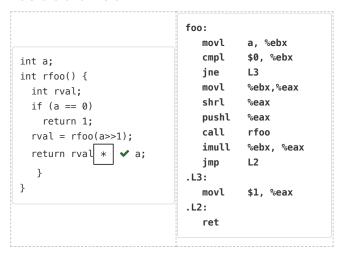
p. %rsp

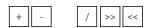
Question 3

Correct

Mark 1.00 out of 1.00

The assembly code on the right partially implements the C function shown on the left. Fill in the missing instruction to correctly implement the C function on the left.





Your answer is correct.

Question 4

Correct

Mark 1.00 out of 1.00

Given the following assembly code:

```
rfun:
       movl
               $0, %eax
               $100, %rdi
       cmpq
               .L18
       jа
               %rbx
       pushq
               %rdi, %rbx
       movq
               (%rdi,%rdi), %rdi
       leaq
       call
               rfun
               %rax, %rbx
       subq
               %rbx, %rax
       movq
       popq
               %rbx
L18:
       rep ret
```

Fill in the blanks by dragging the appropriate entries below:



Your answer is correct.

Question 5

Correct

Mark 1.00 out of 1.00

Given the following C code:

```
long rfun(int x){
  if ( x == 0 ) return 0;
  int nx = x >> 2;
  long rv = rfun(nx);
  return x - rv;
}
```

Fill in the blanks by dragging the appropriate entries below:





Your answer is correct.

Question  $\bf 6$ 

Incorrect

Mark 0.00 out of 1.00

We have Function callee is called by caller as below left and there assembly code on the right:

caller:
endbr64
push %rbp

```
mov
                                      %rsp,%rbp
                               sub
                                      $0x18,%rsp
                                      %edi,-0x14(%rbp)
                               mov
                                      %esi,-0x18(%rbp)
                               mov
                               mov
                                      -0x18(%rbp),%edx
                               mov
                                      -0x14(%rbp),%eax
void caller(int x, int y)
                                      %edx,%esi
                              mov
{
                                      %eax,%edi
                               mov
 int z;
                               callq
                                      1129 <callee>
 z = callee(x,y);
                               mov
                                      %eax,-0x4(%rbp)
 z = z << 2;
                               shll
                                      $0x2,-0x4(%rbp)
 return;
                               leaveq
                               retq
int callee(int x, int y)
                          callee:
  if (x>y)
                               endbr64
        return x;
                               push
                                      %rbp
 else
                               mov
                                      %rsp,%rbp
        return y;
                                      %edi,-0x4(%rbp)
                               mov
                                      %esi,-0x8(%rbp)
                               mov
                               mov
                                      -0x4(%rbp),%eax
                                      -0x8(%rbp),%eax
                               cmp
                                      1144 <callee+0x1b>
                               jle
                               mov
                                      -0x4(%rbp),%eax
                               jmp
                                      1147 <callee+0x1e>
                                      -0x8(%rbp),%eax
                               mov
                               pop
                                      %rbp
```

retq
When caller starts executing(before push %rbp), we have:

%rbp 0x7ffffffdea0 %rsp 0x7ffffffde98

What value does %rsp get when callee starts executing?

Select one:

a. 0x7fffffffde90

×

b. 0x7fffffffde70

c. 0x7fffffffde80

d. 0x7fffffffde78

Your answer is incorrect.