

## 0/4 Questions Answered

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## Check-in Quiz06, pthreads

## Q1 Threads vs Processes

2 Points

(yes, you have done this question before. I'm asking you to do it again as a refresher)

### Q1.1

1 Point

Which of these are unique to every thread?

Data in Files on Disk

File Descriptors

Global Variables

Dynamic Storage (The Heap)

Local Variables (The Stack)

CPU Registers

Save Answer

**Q1.2****1 Point**

Which of these are unique to every process?

 Data in Files on Disk File Descriptors Global Variables Dynamic Storage (The Heap) Local Variables (The Stack) CPU Registers**Save Answer**

## Q2 Shared Memory

4 Points

Consider the code below:

```
// global var
static int counter = 0;

void* thread_fn(void* arg) {
    int amount = *(int*) arg;
    counter += amount;
    free(arg);
    return NULL;
}

int main() {
    pthread_t thd1, thd2;

    int* arg1 = malloc(sizeof(int));
    int* arg2 = malloc(sizeof(int));
    *arg1 = 3;
    *arg2 = 8;

    pthread_create(&thd1, NULL, thread_fn, arg1);
    pthread_create(&thd2, NULL, thread_fn, arg2);

    pthread_join(thd1, NULL);
    pthread_join(thd2, NULL);

    printf("%d\n", counter);

    return EXIT_SUCCESS;
}
```

Select all outputs that are possible. Assume that malloc, pthread\_create, and pthread\_join all do not error.

0

1

2

6

11

22

Compilation Failed

Segmentation Fault

**Save Answer**

### Q3 Thread Ordering

4 Points

Consider the following code that compiles and runs:

```
void* thread_code(void* arg) {
    char* message = (char*) arg;
    printf("%s", message);
    return NULL;
}

int main() {
    pthread_t thd1, thd2;

    pthread_create(&thd1, NULL, thread_code, "A");
    pthread_create(&thd2, NULL, thread_code, "O");

    pthread_join(thd1, NULL);

    return EXIT_SUCCESS;
}
```

Assuming that `pthread_create` and `pthread_join` do not fail, what are the possible outputs of this program?

Please answer as a comma separated list with no spaces (sorted alphabetically)

If you think a segmentation fault is possible, write `SEGV`

for example: `H, HI, I, SEGV`

Save Answer

Save All Answers

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