Started on	Thursday, 16 February 2023, 4:00 PM
State	Finished
Completed on	Thursday, 16 February 2023, 4:21 PM
Time taken	21 mins 17 secs
Grade	**32.00** out of 50.00 (**64**%)

Information

The theory part of this exam uses sequential navigation when presenting the questions. Therefore, questions must be answered the moment they are presented, as you will not have the option of going back to a previous question.

After the theory part, two programming questions will be presented.

True or False questions (2 points each question)

Question **1**

Correct

Mark 2.00 out of 2.00

Small caches have a significant impact on the performance of a computer system.

Select one:

- True ✔
- False

The correct answer is 'True'.

Question **2**

Correct

Mark 2.00 out of 2.00

A programmed I/O uses interrupts to know the state of the I/O device.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **3**

Correct

Mark 2.00 out of 2.00

In a serial processing system, a memory protection mechanism is needed.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **4**

Correct

Mark 2.00 out of 2.00

In Paging (memory management), processes are comprised of a number of variable-size blocks.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **5**

Correct

Mark 2.00 out of 2.00

In the five-state process model with one suspend state, virtual memory is used to allocate the processes that are coming from the new state.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **6**

Incorrect

Mark 0.00 out of 2.00

The program counter is a User-visible register.

Select one:

- True ✖
- False

The correct answer is 'False'.

Question **7**

Correct

Mark 2.00 out of 2.00

In a User-Level Thread implementation, the scheduling at the OS level is based on threads.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **8**

Correct

Mark 2.00 out of 2.00

In a User-Level Thread implementation, a system call will block all of the threads within the process.

Select one:

- True ✔
- False

The correct answer is 'True'.

Information

Simple Choice questions (4 points each question)

Question **9**

Correct

Mark 4.00 out of 4.00

Select the component that is a basic element of a computer system:

Select one:

- a. Processor
- b. Main Memory
- c. I/O Modules
- d. System Bus
- e. All of the above ✔

The correct answer is:
All of the above

Question **10**

Incorrect

Mark 0.00 out of 4.00

Select the advantage of an SMP system that is related to fault tolerance:

Select one:

- a. None of the above
- b. Scaling
- c. Availability
- d. Incremental Growth
- e. Performance ✖

The correct answer is: Availability

Question **11**

Correct

Mark 4.00 out of 4.00

Select the element that is not part of the process control block:

Select one:

- a. PID
- b. Program code ✔
- c. None of the above
- d. State
- e. Priority

The correct answer is: Program code

Question **12**

Correct

Mark 4.00 out of 4.00

Select an advantage of kernel-level threads:

Select one:

- a. Scheduling can be application specific
- b. None of the Above
- c. Can take advantage of a multiprocessor platform ✔
- d. Threads functions are done in user mode
- e. Uses a thread library

The correct answer is: Can take advantage of a multiprocessor platform

Information

Calculate the following parameters of a hypothetical computer system with these features:

a) OCTAL notation
b) IR = OPCode + Mem Addr;
c) # of OPCodes = 64
d) PC = 12 binary digits; and
e) Mem word size = Data (unsigned integer) = IR

Note: do not enter the unit when writing your answer.

Question **13**

Incorrect

Mark 0.00 out of 6.00

Data range: 00000000 - 7777777 ✘

00000000 - FFFFFFFF | 000000 - FFFFFF | 000000 - 777777

The correct answer is:
Data range: [000000 - 777777]

Information

Given the following two-level memory system:

- Level 1 memory access time = TL1
- Level 2 memory access time = TL2
- Average time to access a word from mem = 400 ms
- TL2 = 15*TL1
- Hit Rate = 0.8 (80 %)
- Time to find a word in any level of the memory (0 ms).
- Do not enter the unit when writing your answer.

Calculate:

Question **14**

Correct

Mark 6.00 out of 6.00

Miss Ratio in percentage (**do not include the percentage sign**):

Answer: 20 ✔

The correct answer is: 20

Question **15**

Incorrect

Mark 0.00 out of 6.00

Given the following code:

```
void * func(void  * pointer)
{
   int *int_ptr = (int *) pointer;
   for(int i = 0; i < 6; i++)
      if (i % 2  !=  0 )
         *int_ptr = *int_ptr * 2;
   return NULL;
}

int main()
{
   static int x = 1 ;
   pthread_t tid;
   pthread_create(&tid, NULL, func, (void  *) &x);
   pthread_join (tid, NULL);
   printf ("X  =  % d\n", x);
   return 0;
}
```

How many child threads are created by the main thread?

Answer: 8 ✖

The correct answer is: 1

◄ Attendance

Jump to...

Programming Question 1 ►