Operating System Test

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MCQs

Which of the following is not a valid state of a process

- ○ New
- ◉ Old
- ○ Running
- ○ Waiting

A PCB is a

- ○ variable
- ◉ Data Structure
- ○ A secondary storage section
- ○ Memory block

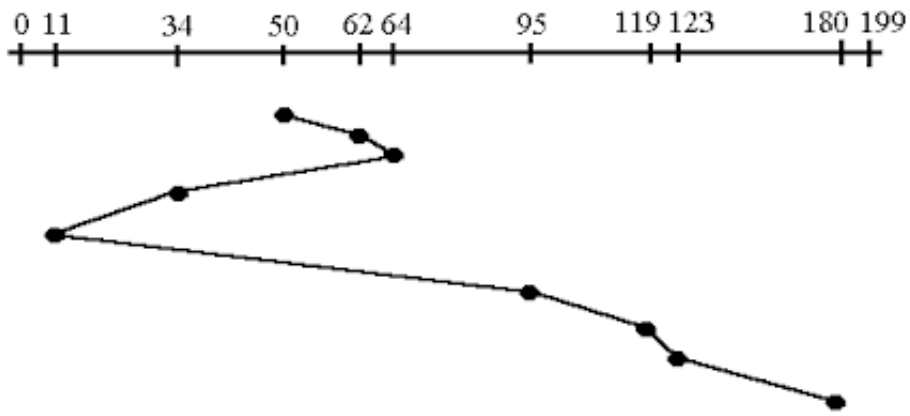
How does middleware resolves the heterogeneity problem

- ○ By adding a stub software for every system
- ◉ By agreeing upon a common standard of data
- ○ By forcing all clients to follow a common standard
- ○ None of the above

Which of the following algorithm(s) follow migrating and non-replicated scheme for data transfer in a Distributed System.

- ○ Migration
- ◉ Central Server
- ○ Full Replication
- ○ Read Replication
- ○ None of the above

The following figure could represent the head movement of which of the following disk scheduling algorithms. (3 Marks)



- ○ SSTF
- ○ FCFS
- ○ SCAN
- ○ C SCAN
- ○ LOOK
- ○ Combination of SSTF and SCAN
- ◉ Could be SSTF or FCFS
- ○ Could be FCFS or C SCAN
- ○ Could be SSTF or Look
- ○ Could be Look or SCAN
- ○ Could be C Scan or LOOK
- ○ Could be C SCAN or SSTF
- ○ None of the above

Which of the following is not a valid capability type?

- [x] Data
- [ ] Infrastructure
- [ ] Platform
- [ ] Software
- [ ] None of the above

The code available at the link (https://drive.google.com/file/d/1ltFTatVV9CHNe7H_V258HajvMjs401tr/view?usp=sharing) could represent: (3 Marks)

- [ ] C SCAN algorithm
- [ ] SCAN algorithm
- [ ] FCFS algorithm
- [x] C LOOK algorithm
- [ ] LOOK algorithm
- [ ] SSTF algorithm

Paging based memory management could suffer from which of the following fragmentations?

- ○ Internal fragmentation
- ○ External fragmentation
- ◉ Both of the above
- ○ None of the above

Algorithms that move data blocks suffer from thrashing. This definitely means:

- ○ Poor locality of reference
- ○ Poor choice of algorithm
- ○ Poor network capabilities
- ○ None of the above
- ○ At least two of the above
- ◉ At most two of the above

Which of the following operations are not idempotent in REST

- ○ GET
- ○ PUT
- ○ DELETE
- ◉ POST

There are two process, both the processes have their segment map tables. If there is an entry with the same segment number, it means:

- ○ The segment will become invalid soon,
- ○ The segments are shared.
- ○ The two processes will be blocked soon.
- ◉ All of the above.
- ○ None of the above.

Processes waiting for CPU access are kept in

- [x] Ready queue
- [ ] Process queue
- [ ] To be executed queue
- [ ] Job queue
- [ ] None of the above

Which of the follow could be classified as a system level software

- [x] Operating system
- [ ] Interpreter
- [ ] Library utilities
- [ ] All of the above

Suppose you are executing a piece of code in OS. There are routines to handle unusual errors. These routines will

- ○ Be Called frequently.
- ○ Almost never be called
- ○ Called periodically
- ◉ anything can happen
- ○ None of the above

Segmented memory management is more complex compared to paging based algorithms because

- ○ Segments are a better alternative than pages.
- ○ Pages are a better alternative to segments.
- ◉ Segments generally have variable length
- ○ Pages are too small in size.
- ○ None of the above.

Which service model offers least security

- (●) IaaS
- ( ) PaaS
- ( ) SaaS
- ( ) All offer the same level of security
- ( ) None of the above

The logical addresses are 32 bits long and the physical addresses are 48 bits long. The memory is word addressable. The page size is 16KB and the word size is 4B. The Translation Look-aside Buffer (TLB) in the address translation path has 256 valid entries. At most how many distinct virtual addresses can be translated without any TLB miss? (2 Marks)

- ( ) 16 * 2^10
- (●) 1 * 2^20
- ( ) 8 * 2^20
- ( ) 4 * 2^20

A system with a total of 128 MB memory available. This memory space is partitioned into 16 MB each. Assume 7 processes are requesting memory usage with sizes as indicated as: [12 MB, 14MB, 13 MB, 17MB, 19MB, 11MB, 8 MB]. . The memory utilization ratio (which can be obtained on dividing the total allocated memory by the total requested memory) is (2 Marks)

- ○ 63.87
- ○ 65.92
- ○ 60.59
- ◉ 61.70

At a particular time, the value of semaphore is 17. Then 20 P, ‘x V’, ‘y P’ and 10 V operations are completed. Given that the total number of P operations are 2 times of the V operations. If the final value of semaphore is 5, then the value of ‘x’ and ‘y’ will be (2 Marks)

- ◉ 3, 5
- ○ 2, 4
- ○ 3, 6
- ○ 4, 5

Consider a machine with a byte addressable main memory of size 64 KB and block size is of 8 B. The main memory is mapped to a direct mapped cache consisting of 32 lines. The line number of the following addresses stored in the cache memory are _____. i. 0001 0001 0011 1011 ii. 1100 0011 0111 0100 (2Marks)

- (●) Line 3 and Line 6
- ( ) Line 7 and Line 14
- ( ) Line 5 and Line 9
- ( ) Line 10 and Line 15

Which of the following is not a valid queue

- ( ) Process queue
- (●) PCB Queue
- ( ) Ready queue
- ( ) None of the above
- ( ) All of the above

In Linux, a utility to check current memory usage is:

- ○ LTOP
- ◉ HTOP
- ○ PS X
- ○ none of the above
- ○ all of the above

The module that consists of multiple procedures, sequence responsible for initialization, and some local data is:

- ○ Semaphore
- ○ Monitor
- ◉ Message
- ○ Binary semaphore

A user can explicitly perform transition into which of the following state(s):

- ○ New
- ○ Block
- ○ Running
- ◉ None of the above
- ○ All of the above

The following figure (Figure 2) could represent the operation of which of the following algorithms (2 Marks)

- ◉ Full Replication
- ○ Read Replication
- ○ Migration
- ○ The figure is not correct
- ○ None of the above

Figure 2