Operating System Solved

MCQs - Part 2

MCQs

Multiple Choice Questions

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A scheduling algorithm assigns priority proportional to the waiting time of a process. Every process starts with priority zero(the lowest priority). The scheduler re-evaluates the process priorities every T time units and decides the next process to schedule. Which one of the following is TRUE if the processes have no I/O operations and all arrive at time zero?

- This algorithm is equivalent to the first-come-first-serve algorithm
- This algorithm is equivalent to the round-robin algorithm
- This algorithm is equivalent to the shortest-job-first algorithm
- This algorithm is equivalent to the shortest-remaining-time-first algorithm

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A process executes the code

```
fork();
fork();
fork();
```

- 3
- 4
- 7
- 8

Memory utilization factor shall be computed as follows

- Memory in use/allocated memory
- Memory in use/total memory connected
- Memory allocated/total memory available
- Memory committed/total memory available

Assume N segments in memory and a page size of P bytes. The wastage on account of internal fragmentation is

- NP/2 bytes
- P/2 bytes
- N/2 bytes
- NP bytes

Consider a logical address space of 8 pages of 1024 words mapped with memory of 32 frames. How many bits are there in the physical address ?

- 9 bits
- 11 bits
- 14 bits
- 15 bits

Moving process from main memory to disk is called

- Scheduling
- Catching
- Swapping
- Spooling

Which of the following is the process by which a user's access to physical data in the application is limited, based on his privileges ?

- Authorization
- Authentication
- Access Control
- All of these

Which of the following statements is not correct with reference to distributed systems ?

- Distributed system represents a global view of the network and considers it as a virtual uniprocessor system by controlling and managing resources across the network on all the sites.
- Distributed system is built on bare machine, not an add-on to the existing software.
- In a distributed system, kernel provides smallest possible set of services on which other services are built. This kernel is called microkernel. Open servers provide other services and access to shared resources.
- In a distributed system, if a user wants to run the program on other nodes or share the resources on remote sites due to their beneficial aspects, user has to log on to that site.

In the blocked state

- The processes waiting for I/O are found
- The process which is running is found
- The processes waiting for the processor are found
- None of the above

Match the following :
(a) Disk scheduling 1. Round-robin
(b) Batch processing 2. SCAN
(c) Time sharing 3. LIFO
(d) Interrupt processing 4. FIFO

- 3 4 2 1
- 4 3 2 1
- 2 4 1 3
- 1 4 3 2

In which of the following page replacement policies Balady's anomaly occurs?

- FIFO
- LRU
- LFU
- NRU

The simplest way to break a deadlock is to

- Preempt a resource
- Rollback
- Kill one of the processes
- Lock one of the processes

Three concurrent processes X, Y, and Z execute three different code segments that access and update certain shared variables. Process X executes the P operation (i.e., wait) on semaphores a, b and c; process Y executes the P operation on semaphores b, c and d; process Z executes the P operation on semaphores c, d, and a before entering the respective code segments. After completing the execution of its code segment, each process invokes the V operation (i.e., signal) on its three semaphores. All semaphores are binary semaphores initialized to one. Which one of the following represents a deadlock- free order of invoking the P operations by the processes?

- X : P (a) P (b) P (c) Y : P (b) P (c) P (d) Z : P (c) P (d) P (a)
- X : P (b) P (a) P (c) Y : P (b) P (c) P (d) Z : P (a) P (c) P (d)
- X : P (b) P (a) P (c) Y : P (c) P (b) P (d) Z : P (a) P (c) P (d)
- X : P (a) P (b) P (c) Y : P (c) P (b) P (d) Z : P (c) P (d) P (a)

A relationship between processes such that each has some part (critical section) which must not be executed while the critical section of another is being executed, is known as

- Semaphore
- Mutual exclusion
- Multiprogramming
- Message passing

Which of the following topologies consists of multiple CPUs connected by a single communication line running the length of the network?

- Tree
- Ring
- Star
- Bus

An operating system

- Is not required on large computers
- Is always supplied with the computer
- Is always supplied with the BASIC
- Consists of programs that help in the operation of computer

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The operating system of a computer serves as a software interface between the user and

- Software
- Hardware
- Processor
- Compiler

In one time password

- The password is different in each instance
- The password is same in each instance
- Both A and B
- None of these

Interval between the time of submission and completion of job is called

- Waiting time
- Turn around time
- Throughput

- Response time

In the process management Round-robin method is essentially the pre-emptive version of _____

- FILO
- FIFO
- SSF
- Longest time first

System supports two types of file which are

- Text files
- Executable binary files
- Both a and b
- None of these

- There is no change.
- Average cohesion goes up but coupling is reduced.
- Average cohesion goes down and coupling also reduces.
- Average cohesion and coupling increase.

In virtual memory systems, Dynamic address translation

- Is the hardware necessary to implement paging
- Stores pages at a specific location on disk
- Is useless when swapping is used
- Is part of the operating system paging algorithm

Which of the following is not supported by the operating system?

- Protection

- Accounting
- Compilation
- I/O operation

Memory on your computer where data is stored temporarily is called _____.

- RAM
- ROM
- BIOS
- CPU

A process executes the code

```
fork ();
fork ();
fork ();
fork ();
```

The total number of child processes created is

- 7
- 9
- 31
- 15

The multiuser operating system, 20 requests are made to use a particular resource per hour, on an average the probability that no request are made in 45 minutes is

- e^{-15}
- e^{-5}
- $1 – e^{-5}$
- $1 – e^{-10}$

Dijkstra banker algorithm is an operating system to solve the problem of

- dead look avoidance
- dead look recovery
- mutual exclusion
- contest sustaining

Pre-emptive scheduling is the strategy of temporarily suspending a gunning process

- before the CPU time slice expires
- to allow starving processes to run
- when it requests I/O
- to avoid collision

Consider a hard disk with 16 recording surfaces (0 -15) having 16384 cylinders (0 -16383) and each cylinder contains 64 sectors (0 - 63) . Data storage capacity in each sector is 512 bytes. Data are organized cylinder–wise and the addressing format is <cylinder no., sector no.>. A file of size 42797 KB is stored in the disk and the starting disk location of the file is <1200, 9, 40>. What is the cylinder number of the last sector of the file, if it is stored in a contiguous manner?

- 1281
- 1282
- 1283
- 1284

The hit ratio of a Translation Look Aside Buffer (TLAB) is 80%. It takes 20 nanoseconds (ns) to search TLAB and 100 ns to access main memory. The effective memory access time is

- 36 ns
- 140 ns
- 122 ns

- 40 ns

A thread

- Is a lightweight process where the context switching is low
- Is a lightweight process where the context switching is high
- Is used to speed up paging
- None of the above

File attributes are

- Name
- Type
- Location
- All of these

Which is built directly on the hardware?

- Computer Environment
- Application Software
- Operating System
- Database System

A solution to the critical section problem must satisfy which requirements?

- Bounded waiting, monitor and relative speed
- Semaphores, monitor and prevention of deadlock
- Signal, wait and continue
- Mutual exclusion, progress and bounded waiting

_____ is used in operating system to separate mechanism from policy

- Single level implementation

- Two level implementation
- Multi level implementation
- None

Worm was made up

- One program
- Two program
- Three program
- All of these

Given memory partitions of 100K, 500K, 200K, 300K and 600K (in order) and processes of 212K, 417K, 112K, and 426K (in order), using the first-fit algorithm in which partition would the process requiring 426K be placed?

- 100K
- 500K
- 200K
- 600K

The primary purpose of an operating system is

- To make the most efficient use of the computer hardware
- To allow people to use the computer
- To keep systems programmers employed
- To make computers easier to use

Let the page fault service time be 10 millisecond(ms) in a computer with average memory access time being 20 nanosecond(ns). If one page fault is generated for every 106 memory accesses, what is the effective access time for memory ?

- 21 ns
- 23 ns

- 30 ns
- 35 ns

A tree structured file directory system

- Allows easy storage and retrieval of file names
- Is a much debated unnecessary feature
- Is not essential when we have millions of files
- None of the above

Security violation due to

- Malicious
- Accidental
- Both A and B
- None of these

Multiprogramming systems

- Are easier to develop than single programming systems
- Execute each job faster
- Execute more jobs in the same time period
- Are used only one large mainframe computers

The most common approach to authenticating a user identity is

- User password
- User log in
- Hardware device
- None of these

A starvation-free job-scheduling policy guarantees that no job waits indefinitely for service. Which of the following job-scheduling policies is starvation-free?

- Round-robin
- Priority queuing
- Shortest job first
- Youngest job first

Which of the following statement is wrong ?
I. 2-phase locking protocol suffer from dead lock.
II. Time stamp protocol suffer from more aborts.
III. A block hole in a DFD is a data store with only inbound flows.
IV. Multivalued dependency among attribute is checked at 3 NF level.
V. An entity-relationship diagram is a tool to represent event model.

- I, II, II
- II, III, IV
- III, IV, V
- II, IV, V

Remote Computing Service involves the use of time sharing and _____.

- multi-processing
- interactive processing
- batch processing
- real-time processing

Cascading termination refers to termination of all child processes before the parent terminates

- Normally
- Abnormally
- Normally or abnormally
- None of these

In round robin CPU scheduling as time quantum is increased the average turn around time

- increases
- decreases
- remains constant
- varies irregularly

At intermediate multiprogramming levels, the rate of increase of throughput with multiprogramming levels decreases. This phenomenon is best explained by the fact that as multiprogramming level increases

- I/O activities per request remains constant
- Some system resources begins to saturate (i.e., to be utilized 100%)
- The utilization of memory improves
- The average time spent in the system by each request increases