

1. Which process can be affected by other processes executing in the system?

- a) cooperating process
- b) child process
- c) parent process
- d) init process

[View Answer](#)

Answer:a

Explanation:None.

2. When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place, is called

- a) dynamic condition
- b) race condition
- c) essential condition
- d) critical condition

[View Answer](#)

Answer:b

Explanation:None.

3. If a process is executing in its critical section, then no other processes can be executing in their critical section. This condition is called

- a) mutual exclusion
- b) critical exclusion
- c) synchronous exclusion
- d) asynchronous exclusion

[View Answer](#)

Answer:a

Explanation:None.

4. Which one of the following is a synchronization tool?

- a) thread
- b) pipe
- c) semaphore
- d) socket

[View Answer](#)

Answer:c

Explanation:None.

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5. A semaphore is a shared integer variable

- a) that can not drop below zero
- b) that can not be more than zero
- c) that can not drop below one

d) that can not be more than one

[View Answer](#)

Answer:a

Explanation:None.

6. Mutual exclusion can be provided by the

- a) mutex locks
- b) binary semaphores
- c) both (a) and (b)
- d) none of the mentioned

[View Answer](#)

Answer:c

Explanation:Binary Semaphores are known as mutex locks.

7. When high priority task is indirectly preempted by medium priority task effectively inverting the relative priority of the two tasks, the scenario is called

- a) priority inversion
- b) priority removal
- c) priority exchange
- d) priority modification

[View Answer](#)

Answer:a

Explanation:None.

8. Process synchronization can be done on

- a) hardware level
- b) software level
- c) both (a) and (b)
- d) none of the mentioned

[View Answer](#)

Answer:c

Explanation:None.

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9. A monitor is a module that encapsulates

- a) shared data structures
- b) procedures that operate on shared data structure
- c) synchronization between concurrent procedure invocation
- d) all of the mentioned

[View Answer](#)

Answer:d

Explanation:None.

10. To enable a process to wait within the monitor,
- a) a condition variable must be declared as condition
 - b) condition variables must be used as boolean objects
 - c) semaphore must be used
 - d) all of the mentioned

View Answer

Answer:a

Explanation:None.

- 1) Concurrent access to shared data may result in :

- a) data consistency
- b) data insecurity
- c) data inconsistency
- d) None of these

View Answer

Answer: c

Explanation: None.

- 2) A situation where several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which access takes place is called :

- a) data consistency
- b) race condition
- c) aging
- d) starvation

View Answer

Answer: b

Explanation: None.

- 3) The segment of code in which the process may change common variables, update tables, write into files is known as :

- a) program
- b) critical section
- c) non – critical section
- d) synchronizing

View Answer

Answer: b

Explanation: None.

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- 4) The following three conditions must be satisfied to solve the critical section problem : (choose three)

- a) Aging
- b) Mutual Exclusion
- c) Deadlock

- d) Progress
 - e) Bounded Waiting
- View Answer

Answer: b,d and e

Explanation: None.

5) Mutual exclusion implies that :

- a) if a process is executing in its critical section, then no other process must be executing in their critical sections
 - b) if a process is executing in its critical section, then other processes must be executing in their critical sections
 - c) if a process is executing in its critical section, then all the resources of the system must be blocked until it finishes execution
 - d) None of these
- View Answer

Answer: a

Explanation: None.

6) Bounded waiting implies that there exists a bound on the number of times a process is allowed to enter its critical section :

- a) after a process has made a request to enter its critical section and before the request is granted
 - b) when another process is in its critical section
 - c) before a process has made a request to enter its critical section
 - d) None of these
- View Answer

Answer: a

Explanation: None.

7) A minimum of _____ variable(s) is/are required to be shared between processes to solve the critical section problem.

- a) one
 - b) two
 - c) three
 - d) four
- View Answer

Answer: b

Explanation: None.

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8) In the bakery algorithm to solve the critical section problem :

- a) each process is put into a queue and picked up in an ordered manner
- b) each process receives a number (may or may not be unique) and the one with the lowest number is served next

- c) each process gets a unique number and the one with the highest number is served next
 - d) each process gets a unique number and the one with the lowest number is served next
- View Answer

Answer: b

Explanation: None.

1) An un-interruptible unit is known as :

- a) single
- b) atomic
- c) static
- d) None of these

View Answer

Answer: b

Explanation: None.

2) The TestAndSet instruction is executed :

- a) after a particular process
- b) periodically
- c) atomically
- d) None of these

View Answer

Answer: c

Explanation: None.

3) Semaphore is a/an _____ to solve the critical section problem.

- a) hardware for a system
- b) special program for a system
- c) integer variable
- d) None of these

View Answer

Answer: c

Explanation: None.

4) The two atomic operations permissible on semaphores are : (choose two)

- a) wait
- b) stop
- c) hold
- d) signal

View Answer

Answer: a and d

Explanation: None.

5) Spinlocks are :

- a) CPU cycles wasting locks over critical sections of programs

- b) locks that avoid time wastage in context switches
- c) locks that work better on multiprocessor systems
- d) All of these

View Answer

Answer: d

Explanation: None.

6) The main disadvantage of spinlocks is that :

- a) they are not sufficient for many process
- b) they require busy waiting
- c) they are unreliable sometimes
- d) they are too complex for programmers

View Answer

Answer: b

Explanation: None.

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7) The wait operation of the semaphore basically works on the basic _____ system call.

- a) stop()
- b) block()
- c) hold()
- d) wait()

View Answer

Answer: b

Explanation: None.

8) The signal operation of the semaphore basically works on the basic _____ system call.

- a) continue()
- b) wakeup()
- c) getup()
- d) start()

View Answer

Answer: b

Explanation: None.

9) If the semaphore value is negative :

- a) its magnitude is the number of processes waiting on that semaphore
- b) it is invalid
- c) no operation can be further performed on it until the signal operation is performed on it
- d) None of these

View Answer

Answer: a

Explanation: None.

10) The code that changes the value of the semaphore is :

- a) remainder section code
- b) non – critical section code
- c) critical section code
- d) None of these

View Answer

Answer: c

Explanation: None.

11) The following program consists of 3 concurrent processes and 3 binary semaphores. The semaphores are initialized as $S_0 = 1$, $S_1 = 0$, $S_2 = 0$.

Process P0

```
while(true)
{
wait(S0);
print '0';
release(S1);
release(S2);
}
```

Process P1

```
wait(S1);
release(S0);
```

Process P2

```
wait(S2);
release(S0);
```

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How many times will P0 print '0' ?

- a) At least twice
- b) Exactly twice
- c) Exactly thrice
- d) Exactly once

View Answer

Answer: a

Explanation: None.

12) Each process P_i , $i = 0, 1, 2, 3, \dots, 9$ is coded as follows :

```
repeat
P(mutex)
{Critical Section}
V(mutex)
forever
```

The code for P10 is identical except that it uses V(mutex) instead of P(mutex). What is the largest

number of processes that can be inside the critical section at any moment (the mutex being initialized to 1)?

- a) 1
- b) 2
- c) 3
- d) None of these

View Answer

Answer: c

Explanation: Any one of the 9 processes can get into critical section after executing P(mutex) which decrements the mutex value to 0. At this time P10 can enter critical section by incrementing the value to 1. Now any of the 9 processes can enter the critical section by again decrementing the mutex value to 0. None of the remaining processes can get into their critical sections.

13) Two processes, P1 and P2, need to access a critical section of code. Consider the following synchronization construct used by the processes :

Process P1 :

```
while(true)
{
w1 = true;
while(w2 == true);
Critical section
w1 = false;
}
Remainder Section
```

Process P2 :

```
while(true)
{
w2 = true;
while(w1 == true);
Critical section
w2 = false;
}
Remainder Section
```

Here, w1 and w2 are shared variables, which are initialized to false. Which one of the following statements is TRUE about the above construct?

- a) It does not ensure mutual exclusion
- b) It does not ensure bounded waiting
- c) It requires that processes enter the critical section in strict alternation
- d) It does not prevent deadlocks, but ensures mutual exclusion

View Answer

Answer: d

Explanation: None.

1. What is the reusable resource?

- a) that can be used by one process at a time and is not depleted by that use
- b) that can be used by more than one process at a time
- c) that can be shared between various threads
- d) none of the mentioned

View Answer

Answer:a

Explanation:None.

2. Which of the following condition is required for deadlock to be possible?

- a) mutual exclusion
- b) a process may hold allocated resources while awaiting assignment of other resources
- c) no resource can be forcibly removed from a process holding it
- d) all of the mentioned

View Answer

Answer:d

Explanation:None.

3. A system is in the safe state if

- a) the system can allocate resources to each process in some order and still avoid a deadlock
- b) there exist a safe sequence
- c) both (a) and (b)
- d) none of the mentioned

View Answer

Answer:c

Explanation:None.

4. The circular wait condition can be prevented by

- a) defining a linear ordering of resource types
- b) using thread
- c) using pipes
- d) all of the mentioned

View Answer

Answer:a

Explanation:None.

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5. Which one of the following is the deadlock avoidance algorithm?

- a) banker's algorithm
- b) round-robin algorithm
- c) elevator algorithm
- d) karn's algorithm

View Answer

Answer:a

Explanation:None.

6. What is the drawback of banker's algorithm?

- a) in advance processes rarely know that how much resource they will need
- b) the number of processes changes as time progresses
- c) resource once available can disappear
- d) all of the mentioned

View Answer

Answer:d

Explanation:None.

7. For effective operating system, when to check for deadlock?

- a) every time a resource request is made
- b) at fixed time intervals
- c) both (a) and (b)
- d) none of the mentioned

View Answer

Answer:c

Explanation:None.

8. A problem encountered in multitasking when a process is perpetually denied necessary resources is called

- a) deadlock
- b) starvation
- c) inversion
- d) aging

View Answer

Answer:b

Explanation:None.

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9. Which one of the following is a visual (mathematical) way to determine the deadlock occurrence?

- a) resource allocation graph
- b) starvation graph
- c) inversion graph
- d) none of the mentioned

View Answer

Answer:a

Explanation:None.

10. To avoid deadlock

- a) there must be a fixed number of resources to allocate
- b) resource allocation must be done only once

- c) all deadlocked processes must be aborted
- d) inversion technique can be used

View Answer

Answer:a

Explanation:None.

1. Which one of the following is not shared by threads?

- a) program counter
- b) stack
- c) both (a) and (b)
- d) none of the mentioned

View Answer

Answer:c

Explanation:None.

2. A process can be

- a) single threaded
- b) multithreaded
- c) both (a) and (b)
- d) none of the mentioned

View Answer

Answer:c

Explanation:None.

3. If one thread opens a file with read privileges then

- a) other threads in the another process can also read from that file
- b) other threads in the same process can also read from that file
- c) any other thread can not read from that file
- d) all of the mentioned

View Answer

Answer:b

Explanation:None.

4. The time required to create a new thread in an existing process is

- a) greater than the time required to create a new process
- b) less than the time required to create a new process
- c) equal to the time required to create a new process
- d) none of the mentioned

View Answer

Answer:b

Explanation:None.

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5. When the event for which a thread is blocked occurs,

- a) thread moves to the ready queue
- b) thread remains blocked
- c) thread completes
- d) a new thread is provided

[View Answer](#)

Answer:a

Explanation:None.

6. The jacketing technique is used to

- a) convert a blocking system call into nonblocking system call
- b) create a new thread
- c) communicate between threads
- d) terminate a thread

[View Answer](#)

Answer:a

Explanation:None.

7. Termination of the process terminates

- a) first thread of the process
- b) first two threads of the process
- c) all threads within the process
- d) no thread within the process

[View Answer](#)

Answer:c

Explanation:None.

8. Which one of the following is not a valid state of a thread?

- a) running
- b) parsing
- c) ready
- d) blocked

[View Answer](#)

Answer:b

Explanation:None.

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9. The register context and stacks of a thread are deallocated when the thread

- a) terminates
- b) blocks
- c) unblocks
- d) spawns

[View Answer](#)

Answer:a

Explanation:None.

10. Thread synchronization is required because

- a) all threads of a process share the same address space
- b) all threads of a process share the same global variables
- c) all threads of a process can share the same files
- d) all of the mentioned

View Answer

Answer:d

Explanation:None.

1) A thread is also called :

- a) Light Weight Process(LWP)
- b) Heavy Weight Process(HWP)
- c) Process
- d) None of these

View Answer

Answer: a

Explanation: None.

2) A thread shares its resources(like data section, code section, open files, signals) with :

- a) other process similar to the one that the thread belongs to
- b) other threads that belong to similar processes
- c) other threads that belong to the same process
- d) All of these

View Answer

Answer: c

Explanation: None.

3) A heavy weight process :

- a) has multiple threads of execution
- b) has a single thread of execution
- c) can have multiple or a single thread for execution
- d) None of these

View Answer

Answer: b

Explanation: None.

4) A process having multiple threads of control implies :

- a) it can do more than one task at a time
- b) it can do only one task at a time, but much faster
- c) it has to use only one thread per process

d) None of these

[View Answer](#)

Answer: a

Explanation: None.

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5) Multithreading an interactive program will increase responsiveness to the user by :

- a) continuing to run even if a part of it is blocked
- b) waiting for one part to finish before the other begins
- c) asking the user to decide the order of multithreading
- d) None of these

[View Answer](#)

Answer: a

Explanation: None.

6) Resource sharing helps :

- a) share the memory and resources of the process to which the threads belong.
- b) an application have several different threads of activity all within the same address space
- c) reduce the address space that a process could potentially use
- d) All of these

[View Answer](#)

Answer: d

Explanation: None.

7) Multithreading on a multi – CPU machine :

- a) decreases concurrency
- b) increases concurrency
- c) doesn't affect the concurrency
- d) can increase or decrease the concurrency

[View Answer](#)

Answer: b

Explanation: None.

8) The kernel is _____ of user threads.

- a) a part of
- b) the creator of
- c) unaware of
- d) aware of

[View Answer](#)

Answer: c

Explanation: None.

9) If the kernel is single threaded, then any user level thread performing a blocking system call will :

- a) cause the entire process to run along with the other threads
- b) cause the thread to block with the other threads running
- c) cause the entire process to block even if the other threads are available to run
- d) None of these

[View Answer](#)

Answer: c

Explanation: None.

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10) Because the kernel thread management is done by the Operating System itself :

- a) kernel threads are faster to create than user threads
- b) kernel threads are slower to create than user threads
- c) kernel threads are easier to manage as well as create than user threads
- d) None of these

[View Answer](#)

Answer: b

Explanation: None.

11) If a kernel thread performs a blocking system call, _____.

- a) the kernel can schedule another thread in the application for execution.
- b) the kernel cannot schedule another thread in the same application for execution.
- c) the kernel must schedule another thread of a different application for execution.
- d) the kernel must schedule another thread of the same application on a different processor.

[View Answer](#)

Answer: a

Explanation: None.

12) Which of the following is FALSE ? (GATE 2007)

- a) Context switch time is longer for kernel level threads than for user level threads
- b) User level threads do not need any hardware support
- c) Related kernel level threads can be scheduled on different processors in a multiprocessor system
- d) Blocking one kernel level thread blocks all other related threads

[View Answer](#)

Answer: d

Explanation: None.

1) Which of the following system calls does not return control to the calling point, on termination ?

- a) fork
- b) exec
- c) ioctl
- d) longjmp

[View Answer](#)

Answer: b

Explanation: None.

2) The following program:

```
main()
{
if(fork())>0)
sleep(100);
}
```

results in the creation of:

- a) an orphan process
- b) a zombie process
- c) a process that executes forever
- d) None of these

[View Answer](#)

Answer: b

Explanation: None.

3) Which of the following system calls transforms executable binary file into a process ?

- a) fork
- b) exec
- c) ioctl
- d) longjmp

[View Answer](#)

Answer: b

Explanation: None

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4) The following C program :

```
main()
{
fork();fork();printf("yes");
}
```

prints yes:

- a) only once
- b) twice
- c) four times
- d) eight times

[View Answer](#)

Answer: c

Explanation: None.

5) Which of the following calls never returns an error ?

- a) getpid

- b) fork
- c) ioctl
- d) open

View Answer

Answer: a

Explanation: None.

6) A fork system call will fail if :

- a) the previously executed statement is also a fork call.
- b) the limit on the maximum number of processes in the system would be executed.
- c) the limit on the maximum number of processes that can be under execution by a single user would be executed.
- d) All of these

View Answer

Answer: b and c

Explanation: None.

7) If a thread invokes the exec system call,

- a) only the exec executes as a separate process.
- b) the program specified in the parameter to exec will replace the entire process.
- c) the exec is ignored as it is invoked by a thread.
- d) None of these

View Answer

Answer: b

Explanation: None.

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8) If exec is called immediately after forking,

- a) the program specified in the parameter to exec will replace the entire process.
- b) all the threads will be duplicated
- c) all the threads will not be duplicated
- d) None of these

View Answer

Answer: a and c

Explanation: None.

9) If a process does not call exec after forking,

- a) the program specified in the parameter to exec will replace the entire process.
- b) all the threads should be duplicated
- c) all the threads should not be duplicated
- d) None of these

View Answer

Answer: b

Explanation: The new process is purely based on fork, due to no exec command, duplication will be done