1. Each request requires that the system consider the _____ to decide whether the current request can be satisfied or must wait to avoid a future possible deadlock.
a) resources currently available
b) processes that have previously been in the system
c) resources currently allocated to each process
d) future requests and releases of each process

2. Given a priori information about the _____ number of resources of each type that maybe requested for each process, it is possible to construct an algorithm that ensures that the system will never enter a deadlock state.
a) minimum
b) average
c) maximum
d) approximate

3. A deadlock avoidance algorithm dynamically examines the _____ to ensure that a circular wait condition can never exist.
a) resource allocation state
b) system storage state
c) operating system
d) resources

4. A state is safe, if _____
a) the system does not crash due to deadlock occurrence
b) the system can allocate resources to each process in some order and still avoid a deadlock
c) the state keeps the system protected and safe
d) all of the mentioned

5. A system is in a safe state only if there exists a _____
a) safe allocation
b) safe resource
c) safe sequence
d) all of the mentioned

6. All unsafe states are _____
a) deadlocks
b) not deadlocks
c) fatal
d) none of the mentioned

8. If no cycle exists in the resource allocation graph _____
a) then the system will not be in a safe state
b) then the system will be in a safe state
c) all of the mentioned
d) none of the mentioned

7. A system has 12 magnetic tape drives and 3 processes : P0, P1, and P2. Process P0 requires 10 tape drives, P1 requires 4 and P2 requires 9 tape drives.

```
Process
P0
P1
P2
Maximum needs (process-wise: P0 through P2 top to bottom)
10
4
9
Currently allocated (process-wise)
5
2
2
```

Which of the following sequence is a safe sequence?
a) P0, P1, P2
b) P1, P2, P0
c) P2, P0, P1
d) P1, P0, P2

9. The resource allocation graph is not applicable to a resource allocation system _____
a) with multiple instances of each resource type
b) with a single instance of each resource type
c) single & multiple instances of each resource type
d) none of the mentioned

10. The Banker's algorithm is _____ than the resource allocation graph algorithm.
a) less efficient
b) more efficient
c) equal
d) none of the mentioned

11. The data structures available in the Banker's algorithm are _____
a) Available
b) Need
c) Allocation
d) All of the mentioned

12. The content of the matrix Need is _____
a) Allocation – Available
b) Max – Available
c) Max – Allocation
d) Allocation – Max

1. What is a 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

2. Which of the following condition is required for a 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

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) all of the mentioned
d) none of the mentioned

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

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

6. What is the drawback of banker's algorithm?
a) in advance processes rarely know 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

7. For an effective operating system, when to check for deadlock?
a) every time a resource request is made
b) at fixed time intervals
c) every time a resource request is made at fixed time intervals
d) none of the mentioned

8. A problem encountered in multitasking when a process is perpetually denied necessary resources is called _____
a) deadlock
b) starvation
c) inversion
d) aging

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

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

1. A deadlock can be broken by _____
a) abort one or more processes to break the circular wait
b) abort all the process in the system
c) preempt all resources from all processes
d) none of the mentioned

2. The two ways of aborting processes and eliminating deadlocks are _____
a) Abort all deadlocked processes
b) Abort all processes
c) Abort one process at a time until the deadlock cycle is eliminated
d) All of the mentioned

3. Those processes should be aborted on occurrence of a deadlock, the termination of which?
a) is more time consuming
b) incurs minimum cost
c) safety is not hampered
d) all of the mentioned

4. The process to be aborted is chosen on the basis of the following factors?
a) priority of the process
b) process is interactive or batch
c) how long the process has computed
d) all of the mentioned

5. Cost factors for process termination include _____
a) Number of resources the deadlock process is not holding
b) CPU utilization at the time of deadlock
c) Amount of time a deadlocked process has thus far consumed during its execution
d) All of the mentioned

6. If we preempt a resource from a process, the process cannot continue with its normal execution and it must be _____
a) aborted
b) rolled back
c) terminated
d) queued

7. To _____ to a safe state, the system needs to keep more information about the states of processes.
a) abort the process
b) roll back the process
c) queue the process
d) none of the mentioned

8. If the resources are always preempted from the same process _____ can occur.
a) deadlock
b) system crash
c) aging
d) starvation

View Answer

9. What is the solution to starvation?
a) the number of rollbacks must be included in the cost factor
b) the number of resources must be included in resource preemption
c) resource preemption be done instead
d) all of the mentioned

1. The number of resources requested by a process _____
a) must always be less than the total number of resources available in the system
b) must always be equal to the total number of resources available in the system
c) must not exceed the total number of resources available in the system
d) must exceed the total number of resources available in the system

2. The request and release of resources are _____
a) command line statements
b) interrupts
c) system calls
d) special programs

3. What are Multithreaded programs?
a) lesser prone to deadlocks
b) more prone to deadlocks
c) not at all prone to deadlocks
d) none of the mentioned

4. For a deadlock to arise, which of the following conditions must hold simultaneously?
a) Mutual exclusion
b) No preemption
c) Hold and wait
d) All of the mentioned

5. For Mutual exclusion to prevail in the system _____
a) at least one resource must be held in a non sharable mode
b) the processor must be a uniprocessor rather than a multiprocessor
c) there must be at least one resource in a sharable mode
d) all of the mentioned

6. For a Hold and wait condition to prevail _____
a) A process must be not be holding a resource, but waiting for one to be freed, and then request to acquire it
b) A process must be holding at least one resource and waiting to acquire additional resources that are being held by other processes
c) A process must hold at least one resource and not be waiting to acquire additional resources
d) None of the mentioned

7. Deadlock prevention is a set of methods _____
a) to ensure that at least one of the necessary conditions cannot hold
b) to ensure that all of the necessary conditions do not hold
c) to decide if the requested resources for a process have to be given or not
d) to recover from a deadlock

8. For non sharable resources like a printer, mutual exclusion _____
a) must exist
b) must not exist
c) may exist
d) none of the mentioned

9. For sharable resources, mutual exclusion _____
a) is required
b) is not required
c) may be or may not be required
d) none of the mentioned

10. To ensure that the hold and wait condition never occurs in the system, it must be ensured that _____
a) whenever a resource is requested by a process, it is not holding any other resources
b) each process must request and be allocated all its resources before it begins its execution
c) a process can request resources only when it has none
d) all of the mentioned

11. The disadvantage of a process being allocated all its resources before beginning its execution is _____
a) Low CPU utilization
b) Low resource utilization
c) Very high resource utilization
d) None of the mentioned

12. To ensure no preemption, if a process is holding some resources and requests another resource that cannot be immediately allocated to it _____
a) then the process waits for the resources be allocated to it
b) the process keeps sending requests until the resource is allocated to it
c) the process resumes execution without the resource being allocated to it
d) then all resources currently being held are preempted

13. One way to ensure that the circular wait condition never holds is to _____
a) impose a total ordering of all resource types and to determine whether one precedes another in the ordering
b) to never let a process acquire resources that are held by other processes
c) to let a process wait for only one resource at a time
d) all of the mentioned

1. The wait-for graph is a deadlock detection algorithm that is applicable when _____
a) all resources have a single instance
b) all resources have multiple instances
c) all resources have a single 7 multiple instances
d) all of the mentioned

2. An edge from process Pi to Pj in a wait for graph indicates that _____
a) Pi is waiting for Pj to release a resource that Pi needs
b) Pj is waiting for Pi to release a resource that Pj needs
c) Pi is waiting for Pj to leave the system
d) Pj is waiting for Pi to leave the system

3. If the wait for graph contains a cycle _____
a) then a deadlock does not exist
b) then a deadlock exists
c) then the system is in a safe state
d) either deadlock exists or system is in a safe state

4. If deadlocks occur frequently, the detection algorithm must be invoked _____
a) rarely
b) frequently
c) rarely & frequently
d) none of the mentioned

5. What is the disadvantage of invoking the detection algorithm for every request?
a) overhead of the detection algorithm due to consumption of memory
b) excessive time consumed in the request to be allocated memory
c) considerable overhead in computation time
d) all of the mentioned

6. A deadlock eventually cripples system throughput and will cause the CPU utilization to _____
a) increase
b) drop
c) stay still
d) none of the mentioned

7. Every time a request for allocation cannot be granted immediately, the detection algorithm is invoked. This will help identify _____
a) the set of processes that have been deadlocked
b) the set of processes in the deadlock queue
c) the specific process that caused the deadlock
d) all of the mentioned

8. A computer system has 6 tape drives, with 'n' processes competing for them. Each process may need 3 tape drives. The maximum value of 'n' for which the system is guaranteed to be deadlock free is?
a) 2
b) 3
c) 4
d) 1

9. A system has 3 processes sharing 4 resources. If each process needs a maximum of 2 units then, deadlock _____
a) can never occur
b) may occur
c) has to occur
d) none of the mentioned

10. 'm' processes share 'n' resources of the same type. The maximum need of each process doesn't exceed 'n' and the sum of all their maximum needs is always less than m+n. In this setup, deadlock _____
a) can never occur
b) may occur
c) has to occur
d) none of the mentioned