CS433 Chapter 6 - Deadlock and Starvation

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1. **All deadlocks involve conflicting needs for resources by two or more processes.**	True
2. **The _____ allows multiple threads to have simultaneous read-only access to an object protected by the lock.**	readers/writer lock
3. **_____ allows the three necessary conditions but makes judicious choices to assure that the deadlock point is never reached.**	Deadlock avoidance
4. **An atomic operation executes without interruption and without interference.**	True
5. **_____ can be defined as the permanent blocking of a set of processes that either compete for system resources or communicate with each other.**	Deadlock
6. **A closed chain of processes exists, such that each process holds at least one resource needed by the next process in the chain is the condition of _____ .**	Circular wait
7. **The _____ condition can be prevented by defining a linear ordering of resource types.**	circular wait
8. **The _____ condition can be prevented by requiring that a process request all of its required resources at one time and blocking the process until all requests can be granted simultaneously.**	Hold and Wait
9. **Deadlock avoidance is more restrictive than deadlock prevention**	False
10. **Deadlock avoidance requires knowledge of future process resource requests.**	True
11. **Deadlock is permanent because none of the events are ever triggered.**	True
12. **The dining philosophers' problem can be representative of problems dealing with the coordination of shared resources which may occur when an application includes concurrent threads of execution.**	True
13. **Examples of _____ include processors, I/O channels, main and secondary memory, devices, and data structures such as files, databases, and semaphores.**	Reusable Resources
14. **An executable entity within a process is a _____ object.**	thread
15. **The fastest form of interprocess communication provided in UNIX is _____ .**	Shared Memory
16. **For deadlock to occur, there must not only be a fatal region, but also a sequence of resource requests that has led into the fatal region.**	True
17. **If access to a resource requires mutual exclusion then mutual exclusion must be supported by the OS**	True
18. **An indirect method of deadlock prevention is to prevent the occurrence of a circular wait.**	False
19. **Inspired by the concept of co-routines, a _____ is a circular buffer allowing two processes to communicate on the producer-consumer model.**	pipe
20. **Interrupts, signals, messages, and information in I/O buffers are all examples of reusable resources.**	False
21. **The _____ is a directed graph that depicts a state of the system of resources and processes, with each process and each resource represented by a node.**	resource allocation graph
22. **A _____ is a software mechanism that informs a process of the occurrence of asynchronous events.**	Signal
23. **The _____ is useful in sending a signal to a thread indicating that a particular event has occurred.**	event object
24. **Linux provides three types of semaphore facilities in the kernel: binary semaphores, counting semaphores, and _____ .**	reader-writer semaphores
25. **The most common technique used for protecting a critical section in Linux is the _____ .**	spinlock
26. **A mutex is used to ensure that only one thread at a time can access the resource protected by the mutex.**	True
27. **The _____ of the system reflects the current allocation of resources to processes.**	state
28. **Once the processes have progressed into the _____ , those processes will deadlock.**	Fatal Region
29. **One of the most significant contributions of UNIX to the development of operating systems is the _____ .**	Pipe
30. **The OS may preempt the second process and require it to release its resources if a process requests a resource that is currently held by another process.**	True

31.	**A program invocation, including the address space and resources required to run the program is a _____ object.**	process
32.	**Requested resources are granted to processes whenever possible with _____ .**	deadlock detection
33.	**A _____ resource is one that can be created and destroyed.**	consumable
34.	**A _____ resource is one that can be safely used by only one process at a time and is not depleted by that use**	reusable
35.	**A set of processes is _____ when each process in the set is blocked awaiting an event that can only be triggered by another blocked process in the set.**	Deadlocked
36.	**A signal is similar to a hardware interrupt but does not employ priorities.**	True
37.	**_____ strategies are very conservative and solve the problem of deadlock by limiting access to resources and by imposing restrictions on processes.**	Deadlock prevention
38.	**The strategy of deadlock _____ is to design a system in such a way that the possibility of deadlock is excluded.**	Prevention
39.	**The strategy of resource allocation denial is referred to as the _____ .**	banker's algorithm
40.	**Three conditions of policy must be present for a deadlock to be possible: mutual exclusion, no preemption, and _____ .**	hold and wait
41.	**Three general approaches exist for dealing with deadlock: prevent, avoid, and _____ .**	detect
42.	**Two types of atomic operations are defined in Linux: integer operations and _____ .**	bitmap operations
43.	**An unsafe state is one in which there is at least one sequence of resource allocations to processes that does not result in a deadlock.**	False
44.	**A useful tool in characterizing the allocation of resources to processes is the resource allocation graph.**	True
45.	**With _____ only one process may use a resource at a time and no process may access a resource unit that has been allocated to another process.**	mutual exclusion