**1. Which of the following is NOT a valid deadlock prevention scheme?** (a) Release all resources before requesting a new resource   
(b) Number the resources uniquely and never request a lower numbered resource than the last one requested  
(c) Never request a resource after releasing any resource .   
(d) Request and all required resources be allocated before execution

**Answer:** (c)

2. Let m[0]…m[4] be mutexes (binary semaphores) and P[0] …. P[4] be processes.  
Suppose each process P[i] executes the following:

wait (m[i]); wait(m[(i+1) mode 4]);

------

release (m[i]); release (m[(i+1)mod 4]);

This could cause   
(a) Thrashing   
(b) Deadlock .  
(c) Starvation, but not deadlock   
(d) None of the above

Answer: (b)

**3. A graphics card has on board memory of 1 MB. Which of the following modes can the**  
**card not support?**   
(a) 1600 x 400 resolution with 256 colours on a 17 inch monitor  
(b) 1600 x 400 resolution with 16 million colours on a 14 inch monitor.  
(c) 800 x 400 resolution with 16 million colours on a 17 inch monitor   
(d) 800 x 800 resolution with 256 colours on a 14 inch monitor  
  
**Answer:** (b)

**4. Using a larger block size in a fixed block size file system leads to**   
(a) better disk throughput but poorer disk space utilization.  
(b) better disk throughput and better disk space utilization  
(c) poorer disk throughput but better disk space utilization  
(d) poorer disk throughput and poorer disk space utilization

**Answer:** (a)

**5. Consider the following statements with respect to user-level threads and kernel supported threads**  
**i. context switch is faster with kernel-supported threads**  
**ii. for user-level threads, a system call can block the entire process**  
**iii. Kernel supported threads can be scheduled independently**  
**iv. User level threads are transparent to the kernel**

**Which of the above statements are true?**   
(a) (ii), (iii) and (iv) only.  
(b) (ii) and (iii) only  
(c) (i) and (iii) only  
(d) (i) and (ii) only

**Answer:** (a)

**6. In a system with 32 bit virtual addresses and 1 KB page size, use of one-level page tables for virtual to physical address translation is not practical because of (GATE CS 2003)**  
(a) the large amount of internal fragmentation  
(b) the large amount of external fragmentation  
(c) the large memory overhead in maintaining page tables.  
(d) the large computation overhead in the translation process

**Answer:** (c)

**7. A virtual memory system uses First In First Out (FIFO) page replacement policy and allocates a fixed number of frames to a process. Consider the following statements:**  
**P: Increasing the number of page frames allocated to a process sometimes increases the page fault rate.**  
**Q: Some programs do not exhibit locality of reference. Which one of the following is TRUE?**  
(a) Both P and Q are true, and Q is the reason for P   
(b) Both P and Q are true, but Q is not the reason for P.   
(c) P is false, but Q is true   
(d) Both P and Q are false

**Answer:** (b)

**8. Which of the following need not necessarily be saved on a context switch between processes? (GATE CS 2000)**  
(a) General purpose registers  
(b) Translation look-aside buffer.  
(c) Program counter  
(d) All of the above

**Answer:** (b)

9. 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

Answer: a

10. Which process can be affected by other processes executing in the system?  
(a) cooperating process  
(b) child process.  
(c) parent process  
(d) init process

Answer: b

11. Which one of the following is a synchronization tool?  
(a) thread  
(b) pipe  
(c) semaphore.  
(d) socket

Answer: c

12. 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

Answer: a

13. Which one of the following is not true?  
(a) kernel is the program that constitutes the central core of the operating system  
(b) kernel is the first part of operating system to load into memory during booting  
(c) kernel is made of various modules which can not be loaded in running operating system  
(d) kernel remains in the memory during the entire computer session.

Answer: d

14. By operating system, the resource management can be done via  
(a) time division multiplexing  
(b) space division multiplexing  
(c) both time and space division multiplexing.  
(d) none of the mentioned

Answer: c

15. The main function of the command interpreter is  
(a) to get and execute the next user-specified command.  
(b) to provide the interface between the API and application program  
(c) to handle the files in operating system  
(d) none of the mentioned

Answer: a

16. If a process fails, most operating system write the error information to a \_\_\_\_\_\_  
(a) log file.  
(b) another running process  
(c) new file  
(d) none of the mentioned

Answer: a

17. 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

Answer: a

18. Process synchronization can be done on  
(a) hardware level  
(b) software level  
(c) both hardware and software level.  
(d) none of the mentioned

Answer: c

19. 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.

Answer: d

20. 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

Answer: a

**21. What is the swap space in the disk used for?**  
(a) Saving temporary html pages  
(b) Saving process data.  
(c) Storing the super-block  
(d) Storing device drivers

Answer (b)  
  
**22. Increasing the RAM of a computer typically improves performance because:**  
(a) Virtual memory increases  
(b) Larger RAMs are faster  
(c) Fewer page faults occur.  
(d) Fewer segmentation faults occur

Answer (c)

**23. Consider the following statements about user level threads and kernel level threads. Which one of the following statement is FALSE?**  
(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 multi-processor system  
(d) Blocking one kernel level thread blocks all related threads.

Answer (D)

24.What is the ready state of a process?  
(a) when process is scheduled to run after some execution.  
(b) when process is unable to run until some task has been completed  
(c) when process is using the CPU  
(d) none of the mentioned

Answer: a

25.To access the services of operating system, the interface is provided by the  
(a) System calls.  
(b) API  
(c) Library  
(d) Assembly instructions

Answer : A