**Sample Questions**

Computer Engineering / Artificial Intelligence and Data Science / Artificial Intelligence and Machine Learning / Computer Science and Engineering (Artificial Intelligence and Machine Learning) / Computer Science and Engineering (Data Science) / Computer Science and Engineering (Internet of Things and Cyber Security Including Block Chain Technology) / Cyber Security / Data Engineering / Internet of Things (IoT)

**Subject Name:** Database Management System **Semester: IV**

**Multiple Choice Questions**

|  | **Choose the correct option for following questions. All the Questions are compulsory and carry equal marks** |
| --- | --- |
| 1. | Core of operating system is \_\_\_\_\_\_\_\_ |
| Option A: | Shell |
| Option B: | Script |
| Option C: | Commands |
| Option D: | Kernel |
|  |  |
| 2. | Multiprogramming systems\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Are easier to develop than single programming systems |
| Option B: | Execute each job faster |
| Option C: | Execute more jobs in the same time period |
| Option D: | Are used only one large mainframe computers |
|  |  |
| 3. | Once operating system is loaded, execution of applications is in \_\_\_\_\_\_\_ mode |
| Option A: | Kernel |
| Option B: | User |
| Option C: | Read-Only |
| Option D: | Standalone |
|  |  |
| 4. | We want to keep the CPU as busy as possible, This criteria refers to as |
| Option A: | Burst Time |
| Option B: | CPU utilization |
| Option C: | Response time |
| Option D: | Throughput |
|  |  |
| 5. | A Process Control Block (PCB) does not contain which of the following? |
| Option A: | Code |
| Option B: | Data |
| Option C: | Stack |
| Option D: | Bootstrap program |
|  |  |
| 6. | Which of the following state transitions is not possible? |
| Option A: | Blocked to running |
| Option B: | Ready to running |
| Option C: | Running to blocked |
| Option D: | Blocked to ready |
|  |  |
| 7. | 1. SRTN Scheduling is type of |
| Option A: | Preemptive scheduling |
| Option B: | Non preemptive scheduling |
| Option C: | Multi level scheduling |
| Option D: | Non blocking scheduling |
|  |  |
| 8. | \_\_\_\_\_\_\_is a synchronization tool and \_\_\_\_\_\_\_operation decrements its value. |
| Option A: | thread, wait |
| Option B: | semaphore, signal |
| Option C: | semaphore, wait |
| Option D: | socket, signal |
|  |  |
| 9. | A scenario in which thread *A* performs an action that causes thread *B* to perform an action that in turn causes thread *A* to perform its original action is called\_\_\_\_ |
| Option A: | Spinlock |
| Option B: | Livelock |
| Option C: | Belady’s anomaly |
| Option D: | Deadlock |
|  |  |
| 10. | Which algorithm requires that the system must have some additional *a priori* information available about resources? |
| Option A: | Deadlock prevention |
| Option B: | Deadlock recovery |
| Option C: | Deadlock avoidance |
| Option D: | Deadlock allocation |
|  |  |
| 11. | 1. Which one is Reusable resource in the system? |
| Option A: | Interrupts |
| Option B: | Main memory |
| Option C: | Signals |
| Option D: | Information in I/O buffers |
|  |  |
| 12. | What is the name of the memory allocation strategy in which the OS allocates the smallest free partition that is big enough to hold the process? |
| Option A: | Worst Fit |
| Option B: | Best Fit |
| Option C: | First Fit |
| Option D: | Next Fit |
|  |  |
| 13. | 1. If the size of the logical address space is 2^m, and a page size is 2^n addressing units then how many high order bits of a logical address designate the page number? |
| Option A: | m-n |
| Option B: | m |
| Option C: | n |
| Option D: | m+n |
|  |  |
| 14. | What is the name of the system where processes initially reside in secondary memory and when it needs to execute a process OS swaps it into main memory? |
| Option A: | Internal fragmentation |
| Option B: | Context Switch |
| Option C: | Demand Paging |
| Option D: | External Fragmentation |
|  |  |
| 15. | Instruction or data near to the current memory location that is being fetched , may be needed soon in near future. this is the principal of \_\_\_\_\_\_\_\_\_ |
| Option A: | Spatial Locality |
| Option B: | Temporal Locality |
| Option C: | Buffering |
| Option D: | Branching |
|  |  |
| 16. | A low-level integer used to identify an opened file at the kernel level, in Linux called as \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Spin lock |
| Option B: | file pointer |
| Option C: | file descriptor |
| Option D: | Signal |
|  |  |
| 17. | a named collection of related information that is recorded on secondary storage is called as \_\_\_\_\_\_\_\_\_ |
| Option A: | Process |
| Option B: | Memory |
| Option C: | Interrupt |
| Option D: | File |
|  |  |
| 18. | Which one is not the correct purpose of the device controller? |
| Option A: | Detect/Correct errors |
| Option B: | Accept commands from software |
| Option C: | Control arm motion |
| Option D: | Buffering |
|  |  |
| 19. | If the drive controller is busy and a process needs I/O to or from a disk, then \_\_\_\_ |
| Option A: | the request will be ignored |
| Option B: | the request will be placed in the queue of pending requests for that drive |
| Option C: | the request will be processed immediately |
| Option D: | the request will be transferred to different controller |
|  |  |
| 20. | In which of the following algorithms, the disk head moves from one end to the other , servicing requests along the way, when the head reaches the other end, it immediately returns to the beginning of the disk without servicing any requests on the return trip? |
| Option A: | LOOK |
| Option B: | SCAN |
| Option C: | C-LOOK |
| Option D: | C-SCAN |
|  |  |
| 21. | The interface is provided by the \_\_\_\_\_\_\_\_\_\_\_ to access the services of operating system, |
| Option A: | System calls |
| Option B: | API |
| Option C: | Library |
| Option D: | Assembly instructions |
|  |  |
| 22. | Which runs on computer hardware and serve as platform for other software to run on? |
| Option A: | Operating System |
| Option B: | Application Software |
| Option C: | System Software |
| Option D: | Rootkit |
|  |  |
| 23. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_structure designs the operating system by removing all non-essential components from the kernel and implementing them as system and user programs. |
| Option A: | Layered |
| Option B: | Microkernel |
| Option C: | Modular |
| Option D: | Hybrid |
|  |  |
| 24. | Which is not state of process in state diagram |
| Option A: | New |
| Option B: | Create |
| Option C: | running |
| Option D: | waiting |
|  |  |
| 25. | Convoy effect is drawback of |
| Option A: | FCFS |
| Option B: | SJF |
| Option C: | ROUND ROBIN |
| Option D: | PRIORITY SCHEDULING |
|  |  |
| 26. | In Shortest remaining time next Scheduling Algorithm, when a process arrives at the ready queue, its burst time is compared with the burst time of |
| Option A: | All process |
| Option B: | Currently running process |
| Option C: | Parent process |
| Option D: | Init process |
|  |  |
| 27. | Process is \_\_\_\_\_\_\_\_\_ |
| Option A: | program in High level language kept on disk |
| Option B: | contents of main memory |
| Option C: | a program in execution |
| Option D: | lightweight thread |
|  |  |
| 28. | The system call used to implement signal operation of semaphore is\_\_\_\_ |
| Option A: | getup( ) |
| Option B: | wakeup( ) |
| Option C: | start( ) |
| Option D: | continue( ) |
|  |  |
| 29. | An operating system contains 3 user processes each requiring 2 units of resource R.The minimum number of units of R such that no deadlocks will ever arise is |
| Option A: | 3 |
| Option B: | 5 |
| Option C: | 4 |
| Option D: | 6 |
|  |  |
| 30. | Which one is the incorrect necessary condition for deadlock to occur? |
| Option A: | Mutual exclusion |
| Option B: | Circular wait |
| Option C: | Hold and wait |
| Option D: | Pre-emption |
|  |  |
| 31. | The value of semaphore can be manipulated using\_\_\_\_\_\_\_ |
| Option A: | Entry section |
| Option B: | Remainder section |
| Option C: | Critical section |
| Option D: | Non- critical section |
|  |  |
| 32. | logical address is generated by \_\_\_\_\_\_\_\_\_ |
| Option A: | page table |
| Option B: | CPU |
| Option C: | Segment table |
| Option D: | IO unit |
|  |  |
| 33. | Which technique is used to overcome external fragmentation when Dynamic Partitioning is used during the process to memory allocation? |
| Option A: | compaction |
| Option B: | page fault |
| Option C: | context switch |
| Option D: | polling |
|  |  |
| 34. | What is the name of memory allocation technique, where the OS searches for a memory block from last placement and chooses the next available block large enough to fit a process ? |
| Option A: | Worst Fit |
| Option B: | Best Fit |
| Option C: | First Fit |
| Option D: | Next Fit |
|  |  |
| 35. | when page is allocated to the frame and in this allocation if a memory frame is not completely full then it leads to the \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Dynamic Linking |
| Option B: | External fragmentation |
| Option C: | Internal fragmentation |
| Option D: | Page fault |
|  |  |
| 36. | which among the options below is not the desirable property of files ? |
| Option A: | Long-term existence |
| Option B: | Shareable between processes |
| Option C: | Short-term existence |
| Option D: | Structure |
|  |  |
| 37. | What is the basic element of data in a file? |
| Option A: | Field |
| Option B: | Array |
| Option C: | Track |
| Option D: | Sector |
|  |  |
| 38. | 1. In\_\_\_\_\_\_\_\_algorithm the disk arm goes as far as the final request in each direction, then reverses direction immediately without going to the end of the disk. |
| Option A: | FCFS |
| Option B: | C-SCAN |
| Option C: | SCAN |
| Option D: | LOOK |
|  |  |
| 39. | The time it takes to position the head at the track on a movable head is known as\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Rotational delay |
| Option B: | Seek time |
| Option C: | Access time |
| Option D: | Transfer rate |
|  |  |
| 40. | In the layered approach of Operating Systems \_\_\_\_\_\_\_\_\_\_ |
| Option A: | Bottom Layer(0) is the User interface |
| Option B: | Highest Layer(N) is the User interface |
| Option C: | Bottom Layer(N) is the hardware |
| Option D: | Highest Layer(N) is the hardware |
|  |  |
| 41. | In layered approach layers are selected such that each uses functions (operations) and services of \_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Only topmost level layers |
| Option B: | Only upper level layers |
| Option C: | Only lower-level layers |
| Option D: | Only bottom most level layers |
|  |  |
| 42. | Most of routine system call are written in |
| Option A: | java |
| Option B: | C & C++ |
| Option C: | Python |
| Option D: | COBOL |
|  |  |
| 43. | The number of processes completed per unit time is known as\_\_\_\_\_\_\_\_\_\_ |
| Option A: | Output |
| Option B: | Efficiency |
| Option C: | Throughput |
| Option D: | Capacity |
|  |  |
| 44. | A single thread of control allows the process to perform \_\_\_\_\_\_\_\_\_\_ |
| Option A: | Only one task at a time |
| Option B: | Multiple tasks at a time |
| Option C: | Only two tasks at a time |
| Option D: | Only three tasks at a time |
|  |  |
| 45. | \_\_\_\_\_\_\_\_\_\_\_\_Scheduler reduces degree of multiprogramming |
| Option A: | Short term scheduler |
| Option B: | Medium term scheduler |
| Option C: | Long term scheduler |
| Option D: | CPU term scheduler |
|  |  |
| 46. | Shortest job first scheduling is special case of |
| Option A: | Priority scheduling |
| Option B: | Round robin |
| Option C: | Multilevel scheduling |
| Option D: | FCFS |
|  |  |
| 47. | The fastest form of IPC provided in UNIX system is |
| Option A: | Virtual memory |
| Option B: | Shared memory |
| Option C: | Main memory |
| Option D: | Secondary memory |
|  |  |
| 48. | Which one is not Reusable resource in the system? |
| Option A: | databases |
| Option B: | Main memory |
| Option C: | Interrupts |
| Option D: | Processor |
|  |  |
| 49. | Deadlock avoidance requires knowledge of future |
| Option A: | process |
| Option B: | resource |
| Option C: | program |
| Option D: | application |
|  |  |
| 50. | A graph that is an important tool used to characterize and allocate resources to processes is |
| Option A: | Location graph |
| Option B: | Resource allocation graph |
| Option C: | Time graph |
| Option D: | Process graph |
|  |  |
| 51. | When the page table is kept in main memory, where does the page table base register (PTBR ) points to? |
| Option A: | page table |
| Option B: | segment table |
| Option C: | limit of segment |
| Option D: | program counter |
|  |  |
| 52. | which one among the below option is the problem seen in contiguous dynamic memory partitioning |
| Option A: | internal fragmentation |
| Option B: | external fragmentation |
| Option C: | deadlock |
| Option D: | page fault |
|  |  |
| 53. | To achieve Memory protection in a paged environment a bit is set to valid or invalid ,what does bit value “invalid” signifies here? |
| Option A: | the page is in the process's logical address space |
| Option B: | the page is not in the process's physical address space |
| Option C: | the page is in the process's physical address space |
| Option D: | the page is not in the process's logical address space |
|  |  |
| 54. | Each entry in the segment table has \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Option A: | page number and a page offset |
| Option B: | segment base and a segment limit |
| Option C: | page number and a segment limit |
| Option D: | a segment offset and a segment limit |
|  |  |
| 55. | The kind of directory structure where The Master File Directory is indexed by user name, and each entry points to the User File Directory for that user is called as \_\_\_\_\_\_\_\_\_ |
| Option A: | Two-level directory structure |
| Option B: | Single level directory structure |
| Option C: | General Graph Directory |
| Option D: | Acyclic-Graph Directories |
|  |  |
| 56. | The file access method where Records are stored and accessed in key sequence is called as \_\_\_\_\_\_ |
| Option A: | Direct access |
| Option B: | Indexed access |
| Option C: | Pile access |
| Option D: | Sequential access |
|  |  |
| 57. | Which buffer holds the output for a device? |
| Option A: | Control |
| Option B: | Spool |
| Option C: | Status |
| Option D: | Output |
|  |  |
| 58. | Device driver is required by which of the following component? |
| Option A: | Cache memory |
| Option B: | Registers |
| Option C: | Hard disk |
| Option D: | Main memory |
|  |  |
| 59. | Which one of the following is the incorrect pair of device and its controller? |
| Option A: | Disk - disk controller |
| Option B: | Keyboard- Video adapter |
| Option C: | Mouse- USB controller |
| Option D: | Monitor- Video adaptor |
|  |  |
| 60. | In the layered approach of Operating Systems \_\_\_\_\_\_\_\_\_\_ |
| Option A: | Bottom Layer(0) is the User interface |
| Option B: | Highest Layer(N) is the User interface |
| Option C: | Bottom Layer(N) is the hardware |
| Option D: | Highest Layer(N) is the hardware |

**Descriptive Questions**

| 1 | *Describe microkernel operating system structure* |
| --- | --- |
| 2 | *What is thread? Describe any four advantages of multithreading model.* |
| 3 | *Why is semaphore known as a synchronisation tool?Give an example.* |
| 4 | *Describe how logical address is converted into physical address when the program and its associated data is divided into segments* |
| 5 | *Summarize various File Attributes* |
| 6 | *With the help of a diagram explain I/O management.* |
| 7 | *Compare short term, medium term and long term scheduler along with diagram* |
| 8 | *Consider a disk with 51(0 to 50) cylinders. While the seek to cylinder 11 is in progress, the request comes for the following cylinders, in the order 1, 36, 16, 34, 9, 12 and 40. The arm moves in an increasing number of cylinders. What is the total distance the arm moves to complete pending requests using FCFS and LOOK algorithms?* |
| 9 | *describe in detail requirements that intends to achieve memory Management* |
| 10 | *With help of a diagram explain how the system call will be generated?* |
| 11 | *Compare preemptive and non preemptive scheduling algorithm?* |
| 12 | *Define deadlock. List the conditions that lead to deadlock.* |
| 13 | *Describe how logical address is converted into physical address when the process is strictly divided into equal size chunks* |
| 14 | *Summarize file system organization architecture* |
| 15 | *Explain disk organization using diagram.* |
| 16 | *Give the importance of proper time quantum selection in Round Robin CPU Scheduling algorithm. Draw Gantt Chart and Find average waiting time and average turnaround time for following using Round Robin Scheduling (Time quantum of 3 msec) and FCFS scheduling: :*   | *Process* | *Burst Time(msec)* | | --- | --- | | *P1* | *10* | | *P2* | *3* | | *P3* | *5* | | *P4* | *7* | |
| 17 | *What is the producer consumer problem? Provide solution to producer consumer problem using semaphores.* |
| 18 | *Discuss the operation of translation lookaside buffer(TLB) in terms of memory management* |
| 19 | *What is an operating system? Describe role of Kernel in operating system* |
| 20 | *Describe criteria in CPU scheduling* |
| 21 | *What is the Dining Philosophers problem?Give one solution.* |
| 22 | explain the problem of thrashing in detail |
| 23 | *Describe various requirements for file management system* |
| 24 | *Define following terms in relation with disk management: Rotational delay, Transfer rate, Access time, Seek time, Cylinder.* |
| 25 | *With the help of diagrams explain different multithreading models* |
| 26 | *Explain Banker’s algorithm for deadlock avoidance. How is it different from deadlock detection?* |
| 27 | *Apply FIFO,LRU,OPTIMAL(OPT) page replacement algorithms on the following page sequence*  *1,2,3,4,5,1,4,2,3,4*  *and calculate number page of HIT and MISS occurred* |