Multiple Choice Questions

1. Which one of the following error will be handle by the operating system?
   a. power failure
   b. lack of paper in printer
   c. connection failure in the network
   d. all of the mentioned
2. The state of a process is defined by _____
   a. the final activity of the process
   b. the activity just executed by the process
   c. the activity to next be executed by the process
   d. None of them
3. I/O hardware contains _____
   a. Bus
   b. Controller
   c. I/O port and its registers
   d. All of the mentioned
4. When the process issues an I/O request _____
   a. It is placed in an I/O queue
   b. It is placed in a waiting queue
   c. It is placed in the ready queue
   d. It is placed in the Job queue
5. What will happen when a process terminates?
   a. It is removed from all queues
   b. It is removed from all, but the job queue
   c. Its process control block is never de-allocated
   d. None of them
6. Multiprogramming of computer system increases
   a. memory
   b. storage
   c. CPU utilization
   d. cost of computation
7. Processor fetches an instruction from
   a. Keyboard
   b. Monitor
   c. CPU
   d. Memory
8. Each process is represented in the operating system by a _____
   a. Process control Block
   b. Printed circuit board
   c. Program control board
   d. Process control board

9. I/O function allows to exchange data directly between an
   a. Process States

b. Registers
c. I/O module and the processor
d. I/O devices

10. What is a long-term scheduler?
    a. It selects which process has to be brought into the ready queue
    b. It selects which process has to be executed next and allocates CPU
    c. It selects which process to remove from memory by swapping
    d. None of the mentioned
11. Which one of the following is not a valid state of a thread?

a. running
b. parsing
c. ready
d. blocked

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

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

a. thread
b. pipe
c. semaphore
d. socket

14. The kernel is _____ of user threads.

a. a part of
b. the creator of
c. unaware of
d. aware of

15. 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

16. 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

17. CPU fetches the instruction from memory according to the value of _____

a. program counter
b. status register
c. instruction register
d. program status word

18. Logical memory is broken into blocks of the same size called _____
a. frames
b. pages
c. backing store
d. none of the mentioned

19. In segmentation, each address is specified by _____
a. a segment number & offset
b. an offset & value
c. a value & segment number
d. a key & value

20. Swap space exists in _____
a. primary memory
b. secondary memory
c. cpu
d. none of the mentioned

21. When using counters to implement LRU, we replace the page with the _____
a. smallest time value
b. largest time value
c. greatest size
d. none of the mentioned

22. A file control block contains the information about _____
a. file ownership
b. file permissions
c. location of file contents
d. all of the mentioned

23. The operating system keeps a small table containing information about all open files called _____
a. system table
b. open-file table
c. file table
d. directory table

24. A relative block number is an index relative to _____
a. the beginning of the file
b. the end of the file
c. the last written position in file
d. none of the mentioned

25. I/O hardware contains _____
a. Bus
b. Controller
c. I/O port and its registers
d. All of the mentioned
26. The data-in register of I/O port is _____
a. Read by host to get input
b. Read by controller to get input
c. Written by host to send output
d. Written by host to start a command
27. SSTF stands for
a. Shortest Seek Time First
b. Small Seek Time First
c. Shortest Small Time First
d. synchronous I/O
28. Virtual memory uses disk space as an extension of _____
a. secondary storage
b. main memory
c. tertiary storage
d. none of the mentioned
29. A single swap space _____ reside in two places.
a. can
b. cannot
c. must not
d. none of the mentioned
30. An unrecoverable error is known as _____
a. hard error
b. tough error
c. soft error
d. none of the mentioned
31. What is operating system?
    a. collection of programs that manages hardware resources
    b. system service provider to the application programs
    c. link to interface the hardware and application programs
    d. all of the mentioned
32. Which of the following is not the state of a process?
    a. New
    b. Old
    c. Waiting
    d. Running
33. Which of the following do not belong to queues for processes?
    a. Job Queue

b. PCB queue
c. Device Queue
d. Ready Queue

34. What is a medium-term scheduler?
    a. It selects which process has to be brought into the ready queue
    b. It selects which process has to be executed next and allocates CPU
    c. It selects which process to remove from memory by swapping
    d. None of the mentioned
35. Suppose that a process is in "Blocked" state waiting for some I/O service. When the service is completed, it goes to the _____
    a. Running state
    b. Ready state
    c. Suspended state
    d. Terminated state
36. What is responsible for creating a process from a program?
    a. Operating System
    b. Web
    c. Internet
    d. Firewall
37. What is inter-process communication?
    a. communication within the process
    b. communication between two process
    c. communication between two threads of same process
    d. none of the mentioned
38. PCB does not contain which of the following?
    a. Code
    b. Stack
    c. Bootstrap program
    d. Data
39. Memory tables are used to keep track of
    a. Real and Virtual Memory
    b. I/O Devices
    c. Resources
    d. I/O Modules+J77
40. Multiprocessor system have advantage of
    a. Increased Throughput
    b. Expensive hardware
    c. operating system
    d. both a and b

41. A process can be _____
    a. single threaded
    b. multithreaded
    c. both single threaded and multithreaded
    d. none of the mentioned
42. Which process can be affected by other processes executing in the system?

a. cooperating process
b. child process
c. parent process
d. init process

43. A semaphore is a shared integer variable _____
    a. that cannot drop below zero
    b. that cannot be more than zero
    c. that cannot drop below one
    d. that cannot be more than one
44. The _____ swaps processes in and out of the memory.
    a. Memory manager
    b. CPU
    c. CPU manager
    d. User
45. 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
46. . If the resources are always preempted from the same process _____ can occur.
    a. deadlock
    b. system crash
    c. aging
    d. starvation
47. Which one of the following is the address generated by CPU?
    a. physical address
    b. absolute address
    c. logical address
        a. none of the mentioned
48. The _____ is used as an index into the page table.
        a. frame bit
        b. page number
        c. page offset
        d. frame offset
49. Each entry in a segment table has a _____
        a. segment base
        b. segment peak
        c. segment value
        d. none of the mentioned
50. Caching is _____ spooling.

a. Same as
b. Not same as
c. Both of them
d. None of them

51. When using counters to implement LRU, we replace the page with the _____
e. smallest time value
f. largest time value
g. greatest size
h. none of the mentioned

52. File attributes consist of _____
a. name
b. type
c. identifier
d. all of the mentioned

53. The operating system keeps a small table containing information about all open files called _____
a. system table
b. open-file table
c. file table
d. directory table

54. The larger the block size, _____ the internal fragmentation.
a. greater
b. lesser
c. same
d. none of the mentioned

55. The device-status table contains _____
a. each I/O device type
b. each I/O device address
c. each I/O device state
d. all of the mentioned

56. A process is moved to wait queue when I/O request is made with _____
e. non-blocking I/O
f. blocking I/O
g. asynchronous I/O
h. synchronous I/O

57. The data-in register of I/O port is _____
e. Read by host to get input
f. Read by controller to get input
g. Written by host to send output
h. Written by host to start a command

58. The process of dividing a disk into sectors that the disk controller can read and write, before a disk can store data is known as _____
    a. partitioning
    b. swap space creation
    c. low-level formatting
    d. none of the mentioned

59. The DMA transfers are performed by a control circuit called as _____
    a. Device interface
    b. DMA controller
    c. Data controller
    d. Overlooker

60. An unrecoverable error is known as _____
    a. hard error
    b. tough error
    c. soft error
    d. none of the mentioned

SHORT QUESTIONS

1. What is Operating System? Explain up to 5th Generation of Operation System.
2. What are the common system components of operating system? Explain in detail.
3. Explain Process Control Block in details.
4. Why thread is necessary? In which circumstances user level thread is better than Kernel level thread.
5. List necessary conditions for deadlock. Explain each of them briefly.
6. Differentiate between paging and segmentation in detail.
7. Define page replacement algorithm. Explain LRU in brief.
8. Explain disk management with example.
9. What are the common system components of operating system? Explain in detail.
10. What is Process? State and Explain Process State Model with Label Diagram.
11. Differentiate between process and thread in detail.
12. What do you mean by Deadlocks? Explain the necessary conditions for deadlocks?
13. Define physical address. Differentiate Between Logical and Physical Address in Operating System
14. Define Page Replacement Algorithm. Explain FIFO algorithm.
15. Explain disk scheduling with SSTF algorithm.
16. What are the common system components of operating system? Explain in detail.
17. Do you think a process can exist without any state? Justify your view with the help of process state transition diagram.
18. When threads are better than processes? Explain the concept of user level threads in detail.
19. What do you mean by memory fragmentation? Distinguish between the internal and external fragmentation.
20. Define physical address. Differentiate Between Logical and Physical Address in Operating System
21. Define Page Replacement Algorithm. Explain LRU algorithm.
22. Describe the methods of implementing files.
23. Explain disk scheduling with SSTF algorithm.

LONG QUESTIONS

1.

a. Describe system call and API in brief.

b. Explain scheduling queue with diagram.

2.

a. Describe how multithreading improves performance over single threaded solution.

b. What do you mean by dead lock prevention? Mention the mechanism for dead prevention.

3. Define the essential properties on the following operating system.

a. Batch
b. Interactive
c. Time sharing
d. Real time

4.

a. What is batch operating system? Explain the structure of operating system in details.

b. When threads are better than processes? Explain the concept of user level threads in detail.

5.

a. Suppose three peoples are in line waiting for a department store to open for "the big sale". When the door opens, all three rush the door, but the door is not big enough for all them to pass through at once. Describe a solution for addressing this deadlock that will allow three peoples to pass through the door. Which of the 4 necessary deadlock conditions does your solution break? Explain.

b. Explain DMA. Compare Polling and interrupt.

6.

a. Given references to the following pages by a program, 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page faults will occur if the program has three page frames available to it and uses FIFO replacement?
b. Explain about bit map and linked list memory management system

7.

a. What is batch operating system? Explain the memory structure in batch operating system. Write the advantage and disadvantage of multi user operating system.

b. Compare long term, short term and medium term scheduler in detail.

8.

a. Explain co-operative processes with the methods of cooperative process.

b. Define virtual memory and how does it works.