Question Bank –Operating Systems (Unsolved)

Q.1 Fill in the blanks: (1 Mark each)

1. Single system image is obtained in case of _____
2. Turnaround Time refers to _____.
3. _____ scheduler selects the process that is ready to execute to CPU.
4. Banker's algorithm is an example of _____ avoidance.
5. _____ is an example of Distributed operating system.
6. _____ is an example of timesharing scheduling policy.
7. _____is an example of shareable resource and _____ is an example for non shareable resource.
8. _____ and _____ are the popular page replacement algorithms.
9. _____ is to NT , where as _____ is to DOS and _____ is to UNIX.
10. Give the expansion of the following with reference to the operating systems concepts: FCB is _____IOCS is _____
11. Throughput in case of multiprogramming is_____.
12. _____is process of modifying the addresses used in the address sensitive instructions of a program such that the program can execute correctly from the designated area of memory.
13. A program is a _____ entity , whereas a process is a _____ entity.
14. Mutex is a _____Semaphore.
15. _____ is the coincidence of high paging traffic and low CPU utilization.
16. FCFS stands for _____.
17. The Scheduling policy in case of a batch processing system is _____.
18. Multiprogramming degenerates to _____ system if there is no proper mix of CPU and I/O bound jobs.
19. DMA stands for _____
20. Protection of memory is ensured using _____ and _____.
21. _____ is forceful deallocation of a resource.
22. SPOOLING stands for _____
23. A _____ operating system is an operating system which requires a timely response from a computer system.
24. _____ is a program in execution.
25. DOS is an example of _____ user system.
26. Unix is an example of _____ user system.
27. Unix uses _____ scheduling policy .
28. _____ and _____ are the goals of an operating system.
29. _____ is a distributed operating system.
30. The _____ determines which process is to be executed next.
31. PSW stands for _____.
32. Mutex is an acronym for _____.
33. A tape is a _____ device.
34. Single system image is obtained in case of _____
35. Turnaround Time refers to _____.
36. _____ scheduler selects the process that is ready to execute to CPU.
37. Banker's algorithm is an example of _____ avoidance.
38. _____ is an example of Distributed operating system.
39. _____ is an example of timesharing scheduling policy.
40. _____is an example of shareable resource and _____ is an example for nonshareable resource.
41. _____ and _____ are the popular page replacement algorithms.
42. Unix is a _____, _____, and _____ operating system.
43. Single system image is obtained in case of _____
44. Turn around Time refers to _____.
45. _____ scheduler selects the process that is ready to execute to CPU.
46. Banker's algorithm is an example of _____ avoidance.
47. _____ and _____ are the popular page replacement algorithms.
48. An OS is the interface between _____ & _____.

49. A file is anything held on _____ storage.
50. Compaction is done when you have _____ fragmentation.
51. _____ is when more time is spent in paging than in actually running programs.
52. A thread is a _____ process.
53. The process of loading the OS into main memory is done by the _____.
54. The motivations behind networks are _____, _____, _____ & _____.
55. NRU stands for _____ and LRU stands for _____ .
56. SPOOLING stands for _____
57. _____ is the coincidence of high paging traffic and low CPU utilization.
58. _____ is a path under execution.
59. The OS maintains information about each process in a record called _____ .
60. _____ is a relation between number of page faults and number of page frames allocated to a process.
61. _____ is the implementation method in case of MS-DOS for non-contiguous allocation.
62. _____ is a mechanism whereby the output of one process is directed into input of another process.
63. The time elapsed for position of Read/Write head under the desired sector is called _____ .
64. _____ , _____ are the two ways to achieve relocation and address translation.
65. The CPU utilization is low when the system is _____.
66. A space allocated in units of fixed size is called _____ .
67. A modified page is also called as _____ page.
68. _____is an example of shareable resource and _____ is an example for non-shareable resource.
69. _____ is forceful deallocation of a resource.
70. Unix is an example of _____ user system.
71. The _____ determines which process is to be executed next.
72. FAT stands for _____ .

Q.2 What do the following Abbreviations stand for? (1 mark each)

1. LWP
2. HRQ
3. DMA
4. PCB
5. FAT

Q.3 Multiple Answer Type Questions: (1 marks each)

1. Which of the following is a non-preemptive O.S.?
   a) UNIX
   b) Windows 95
   c) Windows NT
   d) None
2. The CPU utilization is low when the system is _____.
   a) Timesharing
   b) Thrashing
   c) Multiprocessing
   d) None of the above.
3. The following iss not a form of IPC
   a. Semaphore
   b. Pipe
   c. Shared memory
   d. Buffering
4. The fol. is a part of FAT
   a. Sector info
   b. Disk type
   c. Modified info
   d. Date info

5. Device files in UNIX are
   a. Device drivers
   b. Special files
   c. Pipes
   d. Unstructured files

6. The time of admission of a job to ready queue to completion is :
   a. Turnaround time
   b. Burst time
   c. Response time

7. The fol. Signal is sent by the DMA controller :
   a. HREQ
   b. HLDA
   c. DRQ

8. The main purpose(s) of an Operating System is/are:
   a. convenience for the user
   b. efficient operation of the computer system
   c. optimal use of computing resources
   d. All of the above

9. The signal the keyboard sends to the computer is a special kind of message called ___.
   a. keyboard request
   b. keyboard controller
   c. interrupt controller
   d. interrupt request

10. The available routing schemes are :
    a. fixed routing
    b. virtual routing
    c. dynamic routing
11. The interval from the time of submission of a process to the time of completion is _____.
    a. Turnaround time
    b. Waiting time
    c. Response time

12. The I/O subsystem consist of:
    a. A memory management component including buffering, caching, and spooling
    b. A general device-driver interface
    c. Drivers for specific hardware devices
    d. All of the above

13. Which of the following CPU scheduling algorithms will prevent starvation problem?
    a. Shortest-job-first
    b. Priority-scheduling
    c. Priority-scheduling with aging mechanism
    d. None of the above

14. Which of the following statements is true for a deadlock state
    e. The system cannot run any process
    f. The system can run processes barring those involved in the deadlock
    g. A running process cannot request any new resource
    h. All processes in the ready queue enter the wait queue

15. The problem of thrashing may be reduced by
    a. Using prepaging mechanism

b. Writing well structured programs
c. Both 1 and 2
d. Neither 1 nor 2

16. Which of the following statements is not true?
    a. A directory is a special type of file
    b. A directory is used to store file attributes
    c. A directory is used to store file data
    d. A directory is used to store file access information

17. Biometric devices are used for user authentication in
    a. Proof by knowlege method
    b. Challenge response method
    c. Proof by possession method
    d. Proof by property method

18. A file system uses the contiguous space allocation mechanism for disk space allocation. For better utilization of disk space, this file system must use
    a. A garbage collection mechanism
    b. A disk compaction mechanism
    c. A linked-block allocation mechanism
    d. An indexed-block allocation mechanism

19. Which of the following statements is true?
    a. A computer virus is a complete program that makes active attacks
    b. A computer virus is a program segment that makes passive attacks
    c. A logic bomb is a program segment that makes passive attacks
    d. A logic bomb is a program that makes active attacks

20. The purpose of virtual memory system is to
    a. Allow multiprocessing
    b. Allow multiprogramming
    c. Allow batch processing
    d. Allow execution of a program that requires larger memory than the size of the physical main memory

21. The context of a process is the union of it's _____ .
    a. region tables, u area, system level context
    b. register context, pregion tables, user level context
    c. system-level context, register context, user-level context
    d. process table, user-level context, register context

22. Which of the following is NOT a part of a process control block :
    a. Values of CPU registers
    b. CPU scheduling information
    c. Memory limits of the process
    d. List of files accessible to the process.

23. Suppose the architecture of a computer system is layered into the following four layers -
        1) Operating systems software
        2) users' applications software
        3) hardware
        4) programming environment software

    Which of the following is a logical sequence of the four layers from bottom to top?
    a. 1, 2, 3, 4
    b. 1, 3, 4, 2
    c. 3, 1, 4, 2

d. 3, 4, 1, 2

24. A Job Control Language is used for
    a. telling the system about a job's resource requirements
    b. telling the system administrator / operator about job's resource requirements.
    c. telling the programmer how to program the resource requirements of a job.
    d. none of the above

25. Which was the first processor to introduce protected mode?
    a) 8086
    b) 80286
    c) 80386
    d) 80486

26. The protected mode is necessary for -
    a) multi-tasking system
    b) multi-user system
    c) both a and b
    d) 16 bit programming

27. The segmented memory is provided mainly …
    a) for higher speeds
    b) to maintain compatibility with old processors
    c) for ease of application programming
    d) simple hardware

28. Which of the following features is NOT found in RISC architectures ?
    a) A limited instruction set
    b) A large number of registers
    c) Virtual memory
    d) A large number of execution modes

29. The first CPU with P6 architecture was -
    a) Pentium
    b) Pentium Pro
    c) Pentium II
    d) Pentium III

30. The fastest storage element is -
    a) CD-ROM
    b) DRAM
    c) EDO-DRAM
    d) SDRAM

31. Which peripheral requires the highest data transfer rate?
    a) Sound Card
    b) Network card
    c) Hard disk
    d) Graphics Adapter

32. A virtual memory is required for -
    a) increasing the speed
    b) increasing the addressing modes
    c) overcoming the size limitation of main memory
    d) overcoming the size limitation of cache memory

33. When fork( ) is given
    a) It creates a child process
    b) Allocates slot in process table
    c) Returns 0 to parent & ID to child
    d) All of the above

34. A TSR is a program which will
    a) Be resident in the memory after termination of program
    b) Be called as and when the program is executed
    c) Terminate and Soon Remove the program from the memory
    d) All of the above

35. CPU performance is based on
    a) ALU width
    b) Clock speed
    c) Number of instructions executed per second
    d) How well CPU interacts with the rest of the system
    e) Both a and b
    f) None of the above

36. 80286 the addressing scheme is _____ addressing
    a) 8 bit
    b) 16 bit
    c) 24 bit
    d) 28 bit
    e) 32 bit

37. Shell executes $0 and returns the
    a) Parameters entered in the command line
    b) Program name
    c) All of the above

38. .profile file is present in
    a) /usr
    b) /usr/user1
    c) /etc/admin
    d) None of the above

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    d. An indexed-block allocation mechanism

45. Peak Bandwidth of a 64-bit, 33 MHz based PCI bus would be:
    a. 133 MB/s
    b. 266 MB/s
    c. 512 MB/s
    d. 33 MB/s

46. Main advantage of EISA bus over micro-channel bus was:
    a. It offered more bandwidth over micro-channel
    b. It had software configurable devices
    c. It was backward compatible with ISA
    d. It made the existing peripherals run faster.

47. Which of the following devices is asynchronous ?
    a. SSRAM
    b. EPROM
    c. Disk controllers
    d. All of the above.

48. Which of the following operating systems is available for non-intel platforms ?
    a. Windows-NT
    b. Solaris
    c. linux
    d. all of the above.

49. In the systems which do not have multiple CPUs, is the 'cache coherency' an issue while design?
    a. Yes
    b. No

Q.4 SELECT TRUE OR FALSE: (1 mark each)

1. It is possible to have a deadlock involving only a single process.
2. Unix is a network operating system.
3. All entries in FAT correspond to clusters.
4. A Device controller is a piece of hardware.
5. Round Robin understands priority.
6. SJF is the best scheduling policy.
7. Paging allows protection.
8. Circuit switching has two variants – connection oriented and connectionless.
9. LANs cover a radius of upto 10km.

10. Cipher text is decrypted text.
11. During system startup, program execution begins at addr FFF0H.
12. A virus is a type of worm.
13. Spooling uses the disk as a huge buffer, for reading as far ahead as possible on input devices and for storing output files until the output devices are able to accept them.
14. Ready queue in CPU scheduler is always a first-in, first-out (FIFO) queue.

Q.5 Short Answer Questions: (3 mark each)

1. A process can change its state from block state to run state. Is this statement True or False? Justify your answer.
2. Differentiate between the CPU bound process and I/O bound process.
3. Can we prevent deadlocks by denying mutual-exclusion condition? Justify your answer.
4. What do you mean by locality of reference?
5. What is a dirty bit? Why is it used?
6. What is the difference between circuit switching and packet switching?
7. Justify the statement :
   "It is possible to support multiprogramming without using timesharing. However it is impractical to support timesharing without using multiprogramming"
8. Justify the statement :
   "Swapping improves/degrades the efficiency of system utilization".
9. Describe the cause of READYÅ RUNNING transition.
10. What do you mean by "protection" incase of operating systems? How is it implemented?
11. What is Access Control List? Where is it used?
12. What is a deadlock? How does it occur?
13. What do you mean by scalability?
14. What is a capability list? Where is it used?
15. Comment on the statement:
    "Interactive processes should have low/high priority"
16. Name secondary storage devices and explain where they are typically used.
17. Which type of scheduler controls the degree of multiprogramming?
18. What is a race condition?
19. Which condition(s) is/are very necessary for a deadlock. Justify your answer.
20. What do you mean by a "kernel"?
21. What do you mean by the "context" of a process?
22. Give one difference between a .COM file and .EXE file in DOS.
23. Name the necessary conditions for a deadlock.
24. What is a critical section?
25. What is IOCS? What are it functions?
26. Explain advantages of distributed operating systems:
27. Name different scheduling policies and explain.
28. Differentiate between the logical address space and physical address space.
29. Explain in brief what you mean by:
    1.Multiprogramming
    2.Multiprocessing.
30. Name the five typical file operations.
31. Draw a block diagram showing the process transitions.
32. A process can change its state from block state to run state. Is this statement True or False? Justify your answer.
33. Can we prevent deadlocks by denying mutual-exclusion condition? Justify your answer.
34. How many different types of files are possible on UNIX operating system ? Name them.
35. What is demand paging?
36. Explain Distributed processing with the help of examples.
37. Differentiate between contiguous and non-contiguous memory allocation.
38. What Is deadlock? Give an example.
39. Explain the following: (3 marks each)

a) Semaphores
b) Disk caching
c) Working set
d) Locality of reference
e) DMA
f) Non-preemptive OS

Q.6 Long answer Questions: (4 mark each)

1. Consider a memory with 4 page frames, assuming that pages of a process are referenced in the following order:

   4,3, 2,1,4,3,5,4,3,2,1,5,2.

1. Show, which would be better FIFO or LRU.
2. Considering the above reference string show how Belady's anomaly occurs in case of FIFO.
3. How is memory re-used?
4. With the help of an example show the mapping from virtual address space to physical address space in case of virtual memory.
5. List the fields of the FCB and explain their use.
6. What is the difference between thread, process and Task?
7. What is the critical section problem? How is it handled?
8. Which condition(s) is/are very necessary for a deadlock? Justify your answer.
9. Discuss the use of Active file tables.
10. What constitutes the environment of a process?
11. What do you mean by "static and dynamic binding"?
12. What do you mean by an Inode? Where is it used?
13. How can a deadlock be avoided? Explain.
14. Write in detail the methods of LRU implementation.
15. Explain State Transition Diagram.
16. What is Inter-process communication?
17. Define the terms: Thread; process; Context of a process.
18. Describe the PC architecture with a block diagram
19. Discuss the various issues involved in Process Management