Vidyanidhi Info Tech Academy

PG DAC Question Bank

1. DDE feature is supported by
a. IPC b. Hard Real Time System c. Microkernel d. None

2. A program that acts as an interface between process and OS is called
a. Kernel **b. System call** c. Microkernel d. Virtual Machine

3. The time sharing operating system is also called as
a. Multiprogramming **b. Multitasking** c. Both d. None

4. IPC is required in
a. Multiprocessing b. Single processing c. Both d. None

5. DDE stands for
a. Distributed Dynamic Exchange b. Dynamic Distributed Exchange
c. Distributed Data Exchange **d. Dynamic Data Exchange**

6. A PCB is created when a process is
a. Running b. Ready **c. Created** d. None

7. ISR stands for
a. Inter Service Routine **b. Interrupt Service Routine** c. Interrupt Set Routin d. Internal Service Routing

8. Inter process communication can be done through
a. Mails **b. Messages** c. System calls d. Traps

9. The operating system of a computer serves as a software interface between the user and the
a. **Hardware** b. Peripheral d. Memory **d. Screen**

10. A thread is a _____ process.
a. Heavy Weight b. Multiprocess c. Inter Thread **d. Light weight**

11. A process said to be in _____ state if it was waiting for an event that will never occur.
a. Safe b. Unsafe **c. Deadlock** d. All

12. The Hardware mechanism that enables a device to notify the CPU is called _____.
a. Polling **b. Interrupt** c. System Call d. None of the above

13. IPC stands for
a. Inner Process Communication b. Inter Process Call **c. Inter Process Communication** d. Intra Process Call

14. For non sharable resources like a printer, mutual exclusion :
a. must exist b. must not exist c. may exist d. None of these

15 .The request and release of resources are _____.
a. command line statements b. interrupts **c. system calls** d. special programs

16. A machine that acts as a virtual computer is called
a. Virtual Machine b. Virtual Environment c. Both d. None

17. Semaphores are used to solve the problem of
a. race condition b. process synchronization **c. mutual exclusion** d. belady problem

18. In which scheduling policies, context switching never takes place
a. FCFS b. round robin c. Shortest job first d. Pre-empitive

19. Which technique was introduced because a single job could not keep both the CPU and the I/O devices busy?
a. Time-sharing b. Spooling c. Preemptive scheduling **d. Multiprogramming**

20. Which of the following memory allocation scheme suffers from External fragmentation?
a. Segmentation b. Pure demand paging c. Swapping d. Paging

21. A major problem with priority scheduling is _____.
a. Definite blocking **b. Starvation** c. Low priority d. None of the above

22. A state is safe if
a. It removes deadlock b. It detects deadlock c. It avoids deadlock **d. None**

23. Banker's Algorithm is implemented to
a. Detect Deadlock b. Prevent Deadlock **c. Avoid Deadlock** d. All

24. The disadvantage of moving all process to one end of memory and all holes to the other direction, producing one large hole of available memory is :
a. the cost incurred b. the memory used c. the CPU used d. All of these

25. Semaphore is a/an _____ to solve the critical section problem.
a. hardware for a system b. special program for a system **c. integer variable** d. None of these

26. Virtual memory is normally implemented by _____.
a. demand paging b. buses c. virtualization d. All of these

27. When a thread needs to wait for an event it will
a. Block b. Execute c. Terminate d. Update

28. Paging increases the _____ time.
a. waiting b. execution **c. context – switch** d. All of these

29. Smaller page tables are implemented as a set of _____.
a. queues b. stacks c. counters d. **registers**

30. _____ is generally faster than _____ and _____.
a. **first fit, best fit, worst fit** b. best fit, first fit, worst fit c. worst fit, best fit, first fit d. None of these

31. The two steps of a process execution are : (choose two)
a. **I/O Burst** b. **CPU Burst** c. Memory Burst d. OS Burst

32. An I/O bound program will typically have :
a. a few very short CPU bursts b. many very short I/O bursts **c. many very short CPU bursts** d. a few very short I/O bursts

33. The operating system manages
a. Memory b. Processor c. Disk and I/O devices **d. All of the above**

34. The switching of the CPU from one process or thread to another is called :
a. process switch b. task switch c. context switch d. **All of these**

35. Dispatch latency is :
a. the speed of dispatching a process from running to the ready state
b. the time of dispatching a process from running to ready state and keeping the CPU idle
c. **the time to stop one process and start running another one**
d. None of these

36. A problem encountered in multitasking when a process is perpetually denied necessary resources is called
a. deadlock b. **starvation** c. inversion d. aging

37. A CPU bound program will typically have :
a. a few very short CPU bursts b. **many very short I/O bursts** c. many very short CPU bursts d. a few very short I/O bursts

38. Multithreaded programs are :
a. lesser prone to deadlocks b. **more prone to deadlocks** c. not at all prone to deadlocks d. None of these

39. To ensure that the hold and wait condition never occurs in the system, it must be ensured that :
a. whenever a resource is requested by a process, it is not holding any other resources
b. each process must request and be allocated all its resources before it begins its execution
c. a process can request resources only when it has none
d. **All of these**

40. The disadvantage of invoking the detection algorithm for every request is :
a. overhead of the detection algorithm due to consumption of memory
b. excessive time consumed in the request to be allocated memory
c. **considerable overhead in computation time**
d. All of these

41. A computer system has 6 tape drives, with 'n' processes competing for them. Each process may need 3 tape drives. The maximum value of 'n' for which the system is guaranteed to be deadlock free is :
a. **2** b. 3 c. 4 d. 1

42. A system has 3 processes sharing 4 resources. If each process needs a maximum of 2 units then, deadlock :
a. **can never occur** b. may occur c. has to occur d. None of these

43. 'm' processes share 'n' resources of the same type. The maximum need of each process doesn't exceed 'n' and the sum of all their maximum needs is always less than m+n. In this setup, deadlock :
a. **can never occur** b. may occur c. has to occur d. None of these

44. The two ways of aborting processes and eliminating deadlocks are : (choose all that apply)
a. **Abort all deadlocked processes** b. Abort all processes
c. **Abort one process at a time until the deadlock cycle is eliminated** d. All of these

45. Those processes should be aborted on occurrence of a deadlock, the termination of which :
a. is more time consuming b. **incurs minimum cost** c. safety is not hampered d. All of these

46. Cost factors of process termination include : (choose all that apply)
a. **number of resources the deadlock process is holding** **b. CPU utilization at the time of deadlock**
c. amount of time a deadlocked process has thus far consumed during its execution d. All of the above

47. If we preempt a resource from a process, the process cannot continue with its normal execution and it must be :
a. aborted **b. rolled back** c. terminated d. queued

48. To _____ to a safe state, the system needs to keep more information about the states of processes.
a. abort the process **b. roll back the process** c. queue the process d. None of these

49. If the resources are always preempted from the same process, _____ can occur.
a. deadlock b. system crash c. aging d. **starvation**

50. The solution to starvation is :
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 these

51. The strategy of making processes that are logically runnable to be temporarily suspended is called :
a. Non preemptive scheduling b. **Preemptive scheduling** c. Shortest job first d. First come First served

52. Scheduling is :
a. allowing a job to use the processor b. making proper use of processor c. **Both i and ii** d. None of these

53. Which one of the following is not shared by threads?
a. program counter b. stack c. **both (i) and (ii)** d. none of the mentioned

54. When the event for which a thread is blocked occurs,
a. **thread moves to the ready queue** b. thread remains blocked c. thread completes d. a new thread is provided

55. The register context and stacks of a thread are deallocated when the thread
a. **terminates** b. blocks c. unblocks d. spawns

56. Thread synchronization is required because
a. all threads of a process share the same address space b. all threads of a process share the same global variables
c. all threads of a process can share the same files d. **all of the mentioned**

57. The kernel keeps track of the state of each task by using a data structure called __
a. **Process control block** b. User control block c. Memory control block d. None of the above

58. In the multi-programming environment, the main memory consisting of _____ number of process.
a. Greater than 100 b. Only one c. Greater than 50 d. **More than one**

59. Which of the following statement is not true?
a. Multiprogramming implies multitasking b. Multi-user does not imply multiprocessing
c. Multitasking does not imply multiprocessing d. **Multithreading implies multi-user**

60. Saving the state of the old process and loading the saved state of the new process is called _____.
a. **Context Switch** b. State c. Multi programming d. None of the above

61. Resource locking _____.
a. Allows multiple tasks to simultaneously use resource b. **Forces only one task to use any resource at any time**
c. Can easily cause a dead lock condition d. Is not used for disk drives

62. Operating system is
a. A collection of hardware components b. A collection of input output devices c. **A collection of software routines**
d. All of the above

63. Piece of code that only one thread can execute at a time is called
a. Mutual Exclusion **b. Critical Section** c. Synchronization d. All

64. I/O function allows to exchange data directly between an
a. Process States b. Registers **c. I/O module and processor** d. I/o devices

65. Memory of computer system for storing provides
a. array of characters b. array of alphabets **c. array of words** d. array of numbers

66. Processor-I/O involves data transferring between
a. Computers b. **Processor and I/O modules** **c.** Registers d. User Processes

67. Invalid memory access to computer system is a

a. trap **b.** program c. process d. interrupt

linux

1. The directory contains special files associated with input output devices such as terminals, line printer etc

a. /etc **b. /dev** c. /bin d. /device e. /mnt

2. The utility program that searches a file, or more than one file, for lines which contain strings of a certain pattern

a. Find **b. grep** c. tr d. locate e. pr f. search

3. The Block of every file system contains the major pieces of information about the file system such as file system name , number of blocks reserved for inodes , free inode list etc

a. Inode block **b. Super block** c. Boot block d. Data block

4. Unix OS was first developed at

a Microsoft Corp, USA **b. AT & T Bell Labs , USA** c. IBM , USA d. Borland Internationa, USA

5. Internal value associated with the standard error device.

a. 0 b. 1 **c. 2** d. 9 e. 3

6. A file may have more than one name. This is accomplished using which of the following commands?

a. dup **b. ln** c. named. fork e. cp

7. Which command displays all information about every system process?

a. ps b. ps -f **c. ps -ef** d. ps –a e. ps -u

8. Part of the system which manages the resources of computer system, keep track of the disks, tapes, printers, terminals, communication lines and any other devices.

a. Schedular **b. Kernel** c. Shell d. Resource manager e. System call

9. Chmod 754 on a file

a. allow group and other to read , write b. allow owner to only read

c. allow others to only read d. allow group to only execute

10. If your process refuses to die with kill command in the normal number, signal number option used is

a. 13 **b. 9** c. 3 d. 0 e. 99

11. When we are executing a shell script the shell acts as

a. An Interpreter b. A Compiler c. An Operating System d. None of the above

12. A null variable X can be created using

a. X= b. X='' c. X="" **d. all the above**

13. init _____ halts the system

a. 1 **b. 0** c. h d. 5

14. What would the following file permissions mean "rwxr-xr—"?

a. Read, write and execute permission for everyone.

b. Read, write and execute permission for the file owner, read and execute permission for the group, and only read permission for all others.

c. The file owner is the only one who can execute the file.

d. People who do not own the file and are not in its group, can only run it. System and Network Administration-I

15. A hierarchical structure consisting of directories and files

a. Track b. cylinder c. partition **d. filesystem**

16. Which of the following is not a component of a user account?

a. home directory b. password c. group ID **d. kernel**

17. The redirection symbol for output is

a. > b. < c. ^ d. |

18. To find out a file's inode number, use this option on the "ls" command.

a. -i b. -inode c. -inum d. -in

19. By default, "ps" command will list

a. All processes running of a current users in all terminals

b. **Only processes running in that terminal of the current users**

c. All processes for all users

d. Processes for other users only

20. Which of the following is not a major Unix shell?

a. C shell **b. WIN shell** c. bash shell d. Korn shell

21. The purpose of the PATH variable is to

a. Show the current directory

b. Show the directory path of a file

c. Tells the shell what directories to search when a command is entered

d. Tells the shell in which directories new file can be created

22. The run configuration file in Vi is called

a. cshrc b. virc c. bashrc d. exrc

23. Use the following command to save and exit from Vi.

a. ZZ b.:w c. :q! d. wq **e. Both a and d option**

24. Which of the following Unix utilities are not commonly used to process regular expressions?
a. grep b. sed **c. cut** d. awk

25. Which file controls the initialization process?
a. Fstab **b. inittab** c. sysconfigtab d. gettytab

26. Names are associated with the IP addresses, so that users do not have to remembers IP addresses, This association is the job of the
a. IPN **b. DNS** c. INS d. TCP e. IP

27. New users are added into this file.
a. /passwd b. /usr **c. /etc/passwd** d. /home

28. Passing information between programs is called.
a. Program intertalk b. Program communication
c. Interprocess communication d. Task communication

29. To make a variable available to any subshells you execute using command
a. Import b. global **c. export** d. set e. path

30. User request background execution of a program by placing what at the end of the command line
a. # b. @ **c. &** d. * e. !

31. With a umask value of 12, What are the default permissions assigned to newly created files?
a. --x—x-wx **b. -rw-rw-r—** c. -r-xr-xr— d. -rw-rw----

32. The tar command is used to
a. Print the contents of a file b. Reformatting a file before printing c. **Making archive tapes** d. Merging a file

33. Which one is not a characteristic of pipes
a. Connect commands b. Multiple pipes can be used on a command line
c. **Can create individual files for every process output** d. Can also be used with |tee symbol

34. Which command display the real name of the users who have currently logged on
a. Who **ii) finger** iii) talk iv) whoami v) users

35. To create a hidden file in unix system
a. Filename typed in upper case **b. First character of filename is. (dot)**
c. Filename containing # anywhere d. First character of filename is $.

36. The "nice" command is used to

a. Communicate with other users **b. Improve relationships** c. Change Priority levels of running processes
d. Create processes e. format a document so that its look nice

37. The letters TCP/IP stand for
a. Telecommunication Control Program/Internet Program **b. Transmission Control Protocol/Internet Protocol**
c. Teleprocessing Conversion Program/Internet Program d. None of the above

38. Which special variable contains the PID of its own process?
a. $job **b. $$** c. PID d. $ps

39. The process that needs to run in the background as a daemon to ensure that logging happens is:
a. telnetd b. syslogd c. fsck d. All of these

40. The minimum number of link for a directory is
a. 1 **b. 2** c. 6 d. 3 e. 5

41. Match the following:

1.Program in execution	1. fork (5)
2. Administrator account name in unix/linux	2. $@
3. To continue running process even if user logs out	3. fsck (6)
4. Command providing super user status	4. admin
5. System calls creating new processes	5. process (1)
6. Utility ensure integrity of the file system	6. ocat
7. repeating the last command in vi	7. root (2)
8. Shell environment variable storing number of Arguments	8. nohup (3)
9. displays data in octal format	9. fcheck
10.Write the memory information to the disk	10. .(dot) (7)
	sync (10)
	$# (8)
	13. od (9)

	14. su (4)

Q3. Answer the following:-
What is the difference between the two commands.
$ cat < fileone > filetwo 2> errorlst
$ cat > filetwo 2> errorlst < fileone

Ans: It's a same command , the order of redirection make no difference

What is the meaning of exit status value and how can we access the exit status value of any command
Ans: Exit status meaning the command return value to the environment indicating it is successfully executed or have error
Exit Status value is stored in environment variable $?

3) Differentiate between Relative path and Absolute path
Ans: Relative path is path relative to the current director, so its start with either. or directory name , Absolute or full path always start with / that is root so user can be in any directory it will direct to that path only

4) Write a command to substitute all occurrences of word "printf "with "cout" from a file myprog.c
Ans sed '1,$s/printf/cout/g' myprog.c

5) Explain the directories /bin, /dev and /mnt
Ans: /bin contains all binary executable file or user utility
/dev contains all device files of the system
/mnt is a directory for mounting devices

MCQ

1. 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**

2. To access the services of operating system, the interface is provided by the
a. system calls b. API c. library d. assembly instructions

3. 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

4. The systems which allows only one process execution at a time, are called
a. uniprogramming systems b. uniprocessing systems c. unitasking systems d. none of the mentioned

5. 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

6. The number of processes completed per unit time is known as _____.
a. Output **b. Throughput** c. Efficiency d. Capacity

7. 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. the current activity of the process**

8. Which of the following is not the state of a process?
a. New **b. Old** c. Waiting d. Running

9. The Process Control Block is:
a. Process type variable **b. Data Structure** c. a secondary storage section d. a Block in memory

10. The degree of multi-programming is
a. the number of processes executed per unit time b. the number of processes in the ready queue
c. the number of processes in the I/O queue **d. the number of processes in memory**

11. The objective of multi-programming is to: (choose two)
a. Have some process running at all times b. Have multiple programs waiting in a queue ready to run
c. To minimize CPU utilization **d. To maximize CPU utilization**

12. The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
a. job queue **b. ready queue** c. execution queue d. process queue

13. The interval from the time of submission of a process to the time of completion is termed as
a. waiting time **b. turnaround time** c. response time d. throughput

14. Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?
a. first-come, first-served scheduling b. shortest job scheduling c. priority scheduling d. none of the mentioned

15. Time quantum is defined in
a. shortest job scheduling algorithm **b. round robin scheduling algorithm** c. priority scheduling algorithm
d. multilevel queue scheduling algorithm
16. An interrupt breaks the execution of instructions and diverts its execution to
a. Interrupt service routine b. Counter word register c. Execution unit d. control unit

17. How does the processor respond to an occurrence of the interrupt?
a. By Interrupt Service Routine b. By Interrupt Status Routine c. By Interrupt Structure Routine d. By Interrupt System Routine

18. On getting, an interrupt, CPU
a. finishes the current instruction and moves to interrupt service routine
b. immediately moves to interrupt service routine without completing current instruction [
c. releases the control on I/O lines and memory lines
d. makes the peripheral device, which requested the interrupt wait for fixed interval of time

19. Round robin scheduling falls under the category of :
a. Non preemptive scheduling **b. Preemptive scheduling** c. Preemptive and Non-preemptive d. None of these

20. The portion of the process scheduler in an operating system that dispatches processes is concerned with
a. assigning ready processes to CPU b. assigning ready processes to waiting queue
c. assigning running processes to blocked queue d. All of these

21.The FIFO algorithm :
a. first executes the job that came in last in the queue **b. first executes the job that came in first in the queue**
c. first executes the job that needs minimal processor d. first executes the job that has maximum processor needs

22. Under multiprogramming, turnaround time for short jobs is usually _____ and that for long jobs is slightly _____.
a. Lengthened; Shortened **b. Shortened; Lengthened** c. Shortened; Shortened d. Shortened; Unchanged

23. The _____ swaps processes in and out of the memory.
a. memory manager unit b. CPU c. CPU manager d. user

24. Which one of the following is the address generated by CPU?
a. physical address b. absolute address **c. logical address** d. none of the mentioned

25. Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called
a. fragmentation **b. paging** c. none of the mentioned

26. Operating System maintains the page table for
a. each process b. each thread c. each instruction d. each address

27. The main memory accommodates: (Choose any two)
a. operating system b. CPU **c. user processes** d. All of these

28. In contiguous memory allocation :
a. each process is contained in a single contiguous section of memory
b. all processes are contained in a single contiguous section of memory
c. the memory space is contiguous d. None of these

29. When memory is divided into several fixed sized partitions, each partition may contain _____.
a. exactly one process b. atleast one process c. multiple processes at once d. None of these

30. In fixed sized partition, the degree of multiprogramming is bounded by _____.
a. the number of partitions b. the CPU utilization c. the memory size d. All of these

31. In internal fragmentation, memory is internal to a partition and
a. is being used **b. is not being used** c. is always used d. None of these

32. Solution to the problem of external fragmentation problem is to
a. permit the logical address space of a process to be noncontiguous
b. permit smaller processes to be allocated memory at last
c. permit larger processes to be allocated memory at last d. All of these

33. External fragmentation exists when
a. enough total memory exists to satisfy a request but it is not contiguous
b. the total memory is insufficient to satisfy a request
c. a request cannot be satisfied even when the total memory is free d. None of these

34. When the memory allocated to a process is slightly larger than the process, then
a. internal fragmentation occur b. external fragmentation occur c. both a and b d. neither a nor b

35. Physical memory is broken into fixed-sized blocks called _____.
a. frames b. pages c. backing store d. None of these

36. Logical memory is broken into blocks of the same size called _____.
a. frames **b. pages** c. backing store d. None of these

37. The size of a page is typically :
a. varied **b. power of 2** c. power of 4 d. None of these

38. Because of virtual memory, the memory can be shared among
a. processes b. threads c. instructions d. none of the mentioned

39. Swap space exists in
a. primary memory **b. secondary memory** c. CPU d. none of the mentioned

40. When a program tries to access a page that is mapped in address space but not loaded in physical memory, then
a. segmentation fault occurs b. fatal error occurs **c. page fault occurs** d. no error occurs

41. The operating system of a computer serves as a software interface between the user and the
a. **Hardware** b. Peripheral c. Memory d. Screen

42. The operating system manages
a. Memory b. Disk c. I/O devices d. **All of the above**

43. CPU Scheduling is the basis of _____ operating system
a. Batch b. Uniprogramming c. **Multiprogramming** **d.** Monoprogramming

44. CPU performance is measured through _____.
a. **Throughput** b. MHz c. Flaps d. None of the above

45. A Process Control Block contains:
a. Data b. PID c. Process state d. **All**

46. Process is
a. Program in high level language kept on disk b. Contents of main memory
c. A program in execution **d.** A program in secondary memory

47. Which among following scheduling algorithms give minimum average waiting time
a. FCFS b. **SJF** **c.** Round robin d. Priority

48. Paging _____.
a. **solves the memory fragmentation problem** b. allows modular programming
c. allows structured programming d. avoids deadlock

49. Virtual memory is _____.
a. An extremely large main memory b. An extremely large secondary memory
c. **An illusion of extremely large main memory** d. A type of memory used in super computers.

50. The two steps of a process execution are: (choose two)
a. **I/O Burst** **b. CPU Burst** c. Memory Burst d. OS Burst

51. An I/O bound process will typically have:
a. a few very short CPU bursts b. many very short I/O bursts **c. many very short CPU bursts**
d. a few very short I/O bursts

52. A process is selected from the _____ queue by the _____ scheduler, to be executed.
a. blocked, short term b. wait, long term c. **ready, short term** d. ready, long term

53. With round robin scheduling algorithm
a. **using very large time slices converts it into First come First served scheduling algorithm**
b. using very small time slices converts it into First come First served scheduling algorithm
c. using extremely small time slices increases performance
d. using very small time slices converts it into Shortest Job First algorithm

54. Scheduling is
a. allowing a job to use the processor b. making proper use of processor **c. Both a and b** d. None of these

55. Who is called a supervisor of computer activity?
a. Memory b. **Operating System** **c.** OCI/O Device d. Control Unit

56. The kernel keeps track of the state of each process by using a data structure called
a. **Process control block** b. User control block c. Memory control block d. None of the above

57. In the multi-programming environment, the main memory consisting of _____ number of process.
a. Greater than 100 b. Only one c. Greater than 50 **d. More than one**

58. _____ scheduler selects the jobs from the pool of jobs and loads into the ready queue.
a. **Long term** b. Short term c. Medium term d. None of the above

59. What is Thrashing?
a. A high paging activity **b.** A high executing activity c. An extremely long process d. An extremely long virtual memory

60. Poor response times are caused by
a. Busy processor b. High I/O rate c. High paging rates d. **Any of above**

61. If process is running currently executing, it is in running

a. Mode b. Process c. **State** **d.** Program

62. Microkernel architecture facilitates
a. Functionality b. **Extensibility** **c. Reliability** **d.** Portability

63. Privileged mode of operating system mode is a
a. user mode b. **kernel mode** **c.** system mode d. both b and c

64. An optimal scheduling algorithm in terms of minimizing the average waiting time of a given set of processes is _____.
a. FCFS scheduling algorithm b. Round robin scheduling algorithm **c. Shorest job - first scheduling algorithm**
d. None of the above

65. Which of the following memory allocation scheme suffers from External fragmentation?
a. Fixed Memory Partition **b. Dynamic Memory Partition** c. Paging d. None

66. Which of the following is crucial time while accessing data on the disk?
a. Seek time b. Rotational time c. Transmission time d. Waiting time

67. Paging _____.
a. solves the memory fragmentation problem b. allows modular programming c. allows structured programming
d. avoids deadlock

68. A program at the time of executing is called _____.
a. Dynamic program b. Static program c. Binded Program **d. A Process**

69. Using Priority Scheduling algorithm, find the average waiting time for the following set of processes given with their priorities in the order: Process : Burst Time : Priority respectively .
P1 : 10 : 3 ,
P2 : 1 : 1 ,
P3 : 2 : 4 ,
P4 : 1 : 5 ,
P5 : 5 : 2.
a. 8 milliseconds **b. 8.2 milliseconds** c. 7.75 milliseconds d. 3 milliseconds

70. A process is created and initially put in the
a. ready queue **b. job queue** c. I/O queue d. None

71. PCB =
a. Program Control Block **b. Process Control Block** c. Process Communication Block d. None of the above PCB

72. Round robin scheduling is essentially the preemptive version of _____.
a. FIFO b. Shortest job first c. Shortes remaining d. Longest time first

73. FIFO scheduling is _____.
a. Preemptive Scheduling **b. Non Preemptive Scheduling** c. Deadline Scheduling d. Fair share scheduling

74. In priority scheduling algorithm
a. CPU is allocated to the process with highest priority b. CPU is allocated to the process with lowest priority
c. equal priority processes can not be scheduled d. none of the mentioned

75. In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of
a. all process **b. currently running process** c. parent process d. init process

76. Turnaround time is
a. the total waiting time for a process to finish execution
b. the total time spent in the ready queue
c. the total time spent in the running queue
d. the total time from the completion till the submission of a process

77. Waiting time is
a. the total time in the blocked and waiting queues
b. the total time spent in the ready queue
c. the total time spent in the running queue
d. the total time from the completion till the submission of a process

78. Scheduling is done so as to :
a. increase the waiting time b. keep the waiting time the same **c. decrease the waiting time** d. None of these

79. Response time is
a. the total time taken from the submission time till the completion time
b. the total time taken from the submission time till the first response is produced
c. the total time taken from submission time till the response is output
d. None of these

80. The FCFS algorithm is particularly troublesome for _____.
a. time sharing systems **b. multiprogramming systems** c. multiprocessor systems d. Operating systems

81. One of the disadvantages of the priority scheduling algorithm is that :
a. it schedules in a very complex manner b. its scheduling takes up a lot of time
c. it can lead to some low priority process waiting indefinitely for the CPU d. None of these

85. CPU scheduling decisions takes place under following conditions
a. When a process switches from running to ready state b. When a process switches from running state to waiting state
c. When a process terminates **d. All of the Above**

86. What is meant by throughput?
a. Number of processes running in the system **b. Number of process completed per unit time by the system**
c. Number of processes waiting for CPU per unit time d. None of the above

87. When CPU becomes idle which scheduler is called?
a. Short term scheduler b. Medium term scheduler c. Long term scheduler d. Any

88. 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 these

89. What is Turnaround time of a process?
a. Time spent in waiting queue **b. Time spent in ready queue + waiting queue + running state**

c. Time spent in ready queue + waiting queue d. Time spent in ready queue

90. Which scheduler selects which processes should be brought into the ready queue?
a. Real-term **b. Long-term** c. Medium-term d. Short-term

91. A page fault occurs
a. when the page is not in the memory b. when the page is in the memory
c. when the process enters the blocked state d. when the process is in the ready state

92. A CPU bound process will typically have
a. **many very long CPU bursts** b. many very short I/O bursts c. many very short CPU bursts d. **a few very short I/O bursts**

93. The chunks of a memory are known as
a. Sector b. Offset c. Page **d. Frame**

94. Which of the following concept is best to preventing page faults?
a. Paging **b. The working set** c. Hit ratio d. Address location resolution

95. Copying a process from memory to disk to allow space for other process is called
a. Swap out b. Deadlock c. Demand Paging d. Page fault

96. ..... is a large kernel containing virtually the complete operating system, including, scheduling, file system, device drivers and memory management.
a. Multilithic kernel **b. Monolithic kernel** c. Micro kernel d. Macro kernel

97. .10 A ..... architecture assigns only a few essential functions to the kernel, including address spaces, Inter process communication(IPC) and basic scheduling.
a. Monolithic kernel **b. Micro kernel** c. Macro kernel d. Mini kernel

98. With ..... only one process can execute at a time; meanwhile all other process are waiting for the processer. With ..... more than one process can be running simultaneously each on a different processer.

a. Multiprocessing, Multiprogramming b. Multiprogramming, Uniprocessing **c. Multiprogramming, Multiprocessing**
d. Uniprogramming, Multiprocessing

99. System call routines of operating system are mostly written in
a. C b. C++ c. java d. **both a and b**

100. How does the Hardware trigger an interrupt?
a. Sending signals to CPU through system bus b. Executing a special program called interrupt program
c. Executing a special program called system program d. Executing a special operation called system call

101. Which is not the function of the Operating system?
a. Memory management b. Disk management c. Application management **d. Virus protection**

O.S (1)

1. The page table entry contains_____
   a. the information regarding given page is valid or not b. the information regarding given segment is valid or not
   c. the information regarding given page table is valid or not **d. All of the above**

2. Binary Semaphores are used for _____
   a. resource allocation b. critical sections **c. mutual exclusion** d. synchronization

3. Which CPU scheduling algorithm is non-preemptive type from the following?
   a. Shortest job first scheduling b. Round robin scheduling
   c. Priority based scheduling **d. First come first serve based scheduling**

4. What will be the possibility, when process comes in wait or block state?
   a. disk operation b. time since expire
   c. due to the higher priority process arrival **d. All of the above**

5. What is attenuation?
   a. Noise of the cable **b. Loss of signal strength** c. Unwanted signals d. None of the above

6. What dispatcher does?
   a. Select the process from the ready queue b. Run the process from the ready queue
   c. Select and run the process from the ready queue d. None of the above

7. Which one is he correct statement regarding thread?
   a. Logical extension of the process b. Very similar to the process
   c. Threads have there own address space they do not use the process address space
   d**. Threads share the same address space that is used by the process**

8. What linker does?
   a. merging object files b. sorting text and data **c. resolve symbols across modules** d. All of the above

9. Which one is not a system call?
   a**. excel** **b. execve** c. fork d. All of the above

10. Which statement is true for the deadlock?
   a. It is very usual, when a process terminates, it became dead process and his lead to dead lock
   b. Deadlock arises when a process try to access a non shareable resources
   c. Deadlock arises when process is holding some more resources that are already hold by some other process and no one want to release their resources
   d. Deadlock arises when we try to lock the process and the process is in running state that lock become a dead lock

11. By using interrupt which kind of problem will be eliminated?
a. Spooling **b. Polling** c. Job Scheduling d. None of the above

12. Copy-on-write concept is_____
a. applicable only for two unrelated processes b. used by the processes those created with the help of exec call
c. used by the any kind of process no restriction **d. used by the related processes**

13. What are the resources for the computer system?
a. CPU cycles b. System buses c. Operating system code an d data structure **d. All of the above**

14. Which statement is true from the following?
a. A safe state is a deadlock state always b. An unsafe state is a deadlock state always
c**. An unsafe state has a probability to be a deadlock state** d. All are tgrue

15. Virtual memory with paging mechanism (page-replacement technique) provides
a. runtime relocatability b. memory extension c. memory protection **d. All of the above**

16. With any Disk Scheduling Algorithms, Performance depends on_____
a. Number of requests b**. Number and types of requests** c. Types of requests d. None of the above

17. Which one is not a part of the kernel?
a. Memory management **b. Debuggers management** c. Interrupt Management d. Timer and clock management

18. How many processes can be active in a monitor at a time?
a. Any no of processes **b. Only one** c. Only two d. None of the above

19. A Hierarchical structure consisting of directories and files
a. Track b. cylinder c. partition **d. filesystem**

20. Which register is use for memory management?
a. base register b. bound register and stack pointe **c. base and bound registeruit** d. base and stack pointer register

21. The purpose of the PATH variable is to
a. Show the current directory b. Show the directory path of a file
c**. Tells the shell what directories to search when a command is entered**
d. Tells the shell in which directories new file can be created

22. Names are associated with the IP addresses, so that users do not have to remembers IP addresses, this association is the job of the
a. IPN **b. DNS** **c. INS** d. TCP e. IP

23. What is the use of the program counter register?
a. It points to the next program in the execution b**. It points to the next instruction statement in the program**

c. It points to the next block of code in the execution d. None of the above

24. A pointer is said _____ if the definition of the type to which it points to is not included in the current translation unit. A translation unit is the result of merging an implementation file with its headers and header file
a. This pointer **b. Opaque pointer** c. Function pointer d. Nested pointer

25. Which of the following stack operation could result as stack underflow/
a. is empty b**. pop** c. push d. Two or more of the above answers

26. User request background execution of a program by placing what at the end of the command line
a. # b. @ **c. &** d. * e. !

27. Which statement is true?
a. Cache memory is type of the nonvolatile memory b. RAM stands for reliable access memory
c**. Cache resides between main memory and CPU** d. Hard disk is made up of different layer of the RAM

28. During process execution, which state transaction, is not possible?
a. ready state to running state b. running state to block state **c. block state to terminate state** d. block state to ready state

29. The tar command is used to
a. Print the contents of a file b. Reformatting a file before printing **c. Making archive tapes** d. Merging a file

30. Which command display the real name of the users who have currently logged on
a**. Who** b. finger c. talk d. whoami e. users

31. What is process control block?
a. It is data structure that represents the process
b. It is a data structure, which is part of the user space, and it represents the process
c**. It is a data structure, which is part of the kernel space, and it represents the process**
d. It is not a data structure which can be in virtual address space it represent the process

32. Paging leads to _____
a**. Internal fragmentations** b. External fragmentations c. Both 1 & 2 d. All of the above

33. The minimum number of link for a directory is
a. 1 **b. 2** c. 6 d. 3 e. 5

34. Internal Value associated with the standard error device
a. 0 b. 1 c. 2 d. 9 e. 3

35. Which of the following is not a component of a user account?
a. home directory b. password c. group ID **d. kernel (*)**

36. The redirection symbol for output is
a**. >** b. < c. ^ d. |

37. Which of the following is not a major Unix shell?
a. C shell **b. WIN shell** c. bash shell d. Korn shell

38. Which of the following Unix utilities are not commonly used to process regular expressions?
a. grep b. sed **c. cut** d. awk

39. New users are added into this file
a. /passwd b. /usr **c. /etc/passwd** d. /home

40. The tar command is used
a. Print the contents of a file b. Reformatting a file before printing c**. Making archive tapes** d. erging a file

OPERATING SYSTEM CONCEPTS

1. Which command will be used to display the current user id and name?
a. Who b. Which c. Who am i d. where is

2. As an abstraction, what operations apply to processes?
a. create b. exit c. status **d. All of the above**

3. Which command allow you to determine if a host is connected to the internet?
a. cmd b. Is-Ia **c. ping** d. pwd

4. Computer that handles concurrent users and multiple jobs are called_____
a. Client b. Network Client **c. Network servers** d. All of the above

5. Which of the following make up DOS?
a. Boot files b. File Management files c. Utility files **d. All of the above**

6. The file assign4.html has permissions to set as r w x r w x r w x
a. The file is really a directory and was named incorrectly **b. Everyone can read, write, and execute the file**
c. It is impossible for a html file to have permissions set that way d. The file can not be viewed on the WWW

7. Which of the following is true for DLLs?
a. DLLs don't get loaded in to random access memory together with the main program
b. A DLL helps promote developing modular programs

c. Both 1 and 2 d. None of the above

8. On a single processor multi-threading generally occurs by _____-
a. Time division multiplexing b. Multi processing **c. Context switching** d. None of the above

9. The ability of an Operating System to execute different parts of a program simultaneously is known as _____
a. Multi - Tasking b. Multi programming **c. Multi – Threading** d. Multi – scheduling

10. Which of the following is main objective of Disk Scheduling?
a. To minimize seek time b. To maximize turnaround time c. To minimize throughout d. To maximize bandwidth

11. In which of the following condition deadlock will occur?
a. Mutual wait; hold and wait; pre-emption; circular wait b. Mutual exclusion; hold and no wait; pre-emption; circular wait
c. Mutual exclusion; hold and wait, pre-emption; circular wait d. Mutual exclusion; hold and wait; non pre-emption ; circular wait

12. Which command will be used to display what date is it this Friday?
a. Date-fri b. Date-d fri c. Cal-d fri d. None of the above

13. Which command will be used to print selected parts of lines from each FILE to standard output?
a. Cut [option]…[FILE]… b. Print [option]…[FILE]… c. Cmp [option]…[FILE]… d. Comm. [option]…[FILE]…

14. Multiplexing of a single physical resource involves_____
a. Combining resources based on time b. Combining resources based on space
c. Dividing the resource based on time or space d. All of the above

15. When the processor is in user mode, all addresses are _____
a. Physical address b. Logical address c. Absolute address d. Memory address

16. What is an interrupt?
a. It is an immediate transfer of control caused by an event in the system
b. Some interrupts can only occur when bit 1 of the psw register is 1
c. Both 1 & 2 d. None of the above

17. Plan ahead so that you never get into a situation where deadlock is inevitable is called as _____
a. Deadlock prevention b. Deadlock avoidance c. Deadlock recovery d. Avoiding Mutual exclusion

18. In which situation a process is prevented from proceeding because some other process always has the resources it needs?
a. Locking b. Deadlock c. Starvation d. Blocking

19. Which of the following statement is false?
a. A smaller page size leads to smaller page tables b. A smaller page size leads to move TLB misses
c. A smaller page size leads to fewer page faults d. A smaller page size reduces paging I/O throughout

20. Anything that can be used by only a single process at any instant in time is called as _____
a. Memory b. Thread c. Space d. Resources

21. _____ determines which process gets CPU and when
a. Dispatcher b. Scheduler c. Allocator d. Process allocator

22. Which method is used to eliminate fragmentation after it occurs?
a. Compaction b. Segmentation c. Paging **d. All of the above**

23. Which method is used by memory to improve disk performance is used?
a. Disk Scheduling b. Disk caching c. Both 1 & 2 d. None of the above

24. When paging technique be used?
a. It is a solution to external fragmentation problem b. It is used to allow a process to be allocating
c. Both 1 & 2 d. None of the above

25. Which method is used by a program to make request to operating system?
a. System call b. CPU call c. Memory Management d. Interrupt call

26. The ability of a computer, machine, electronic system or network to maintain limited functionality even when a large portion of it has been destroyed or rendered is called as _____
a. Fault tolerance b. Fault Management **c. Graceful degradation** d. Denial of services

27. Memory allocation _____
a. is a process involves specification of memory addresses to its instructions and data
b. is an aspect of a more general action known as binding
c. Both 1 & 2 d. None of the above

28. Which type of binding perform before the operation of a program begins?
a. Static binding b. Dynamic binding c. Synchronous binding d. Asynchronous binding

29. Which of the following statement is true for dynamic allocation?
a. Allocation is performed during execution of a program b. Allocation exactly equals data size
c. No wastage of memory **d. All of the above**

30. Pre-emptive scheduling is used to temporally suspending a running process_____
a. To allow starving processes to run b. Before the CPU time slice expires **c. When it requests I/O** d. When interrupt occurs

31. The memory allocated to a process contains _____
a. Code and non static data of the program to be executed b. Stack c. Program controlled by dynamic data
d. All of the above

32. Which of the following mode is performing I/O operations?
a. Interrupt mode b. Running mode c. Memory access mode d. Safe mode

33. When a process terminates and all it's child process must also be termed this situation is called as ___
a. Child termination b. Child parent termination c. Spawn termination **d. Cascading termination**

34. Which of the following register contains address of the next instruction to be executed by the CPU?
a. Program counter register b. CPU registers c. Control register d. Condition code register

35. When an interrupt arises during its execution and the scheduler selects some other program for execution is called as _____
a. Preemption b. Non Preemption c. Priority d. Interrupt Processing

36. Page-replacement technique provides_____
a. Memory contraction b. Compile time relocability c. Memory protection d. None of the above

37. Swap space resides in _____
a. SRAM b. DRAM c. Processor **d. Disk**

38. Which of the following policy is used by Linux for page replacement?
a. LRU b. Optimal c. FIFO d. MRU

39. Which of the following statement is false?
a. Dirty buffers in the disk cache are written to the cache when the cache is too full
b. Each buffer in the cache has not a buffer header that is allocated in a slab of the slab allocator
c. The vnode data structure of the virtual file system contains pointers to device-specific functions

40. A process sends data to another process and the sender does not wait till the data is received by the receiver. This type of transfer is known as _____
a. Synchronous **b. Asynchronous** c. Blocking d. None of the above

41. Which command would yu use to create a sub-director in your home directory?
a. mkdir b. dir c. cp d. rm

42. Which command will display a calendar?
a. calendar **b. cal** c. dis cal d. view cal

43. The interval between submission of a request and the first response to that request is called as _____
a. Turnaround time b. Time delay **c. Response time** d. Request time

44. A unique number is used to look up an entry in the inode table which gives information on the type, size and location of the file is called as _____
a. Inode value b. Inode c. Inode number **d. All of the above**

45. Which of the following controls the degree of multi programming?
a. Long term scheduler b. Short term scheduler c. Both 1 & 2 d. None of the above

46. How can you view the permission-settings on all files in the current directory?
a. displayall **b. ls-l** c. listall d. listdir

47. Which command sends file content to standard output and list the content of short files to the screen?
a. echo b. cp **c. cat** d. None of the above

48. Which of the following statement is false?
a. Virtual memory is used only in multi-user systems b. Segmentation suffers from external fragmentation
c. Paging suffers from internal fragmentation d. Segmentation memory can be paged

49. In which scenario the First-Come, First-Served scheduling policy, I/O bound processes may have to wait long in the ready queue waiting for a CPU bound job to finish?
a. Aging **b. Priority inversion** c. Priority Inheritance d. Convoy effect

50. How can we determined the minimum number of page frames that must be allocated to a running process in a virtual memory environment?
a. the instruction set architecture b. page size c. number of processes in memory d. physical memory size

Operating System Principles

1. Bootstrap loader is _____
a. A program, which resides in the user space **b. A program, which resides in ROM**
c. A program, which resides in the RAM d. A program, which is a module of the kernel space

2. The page table entry contains_____
a. the information regarding given page is valid or not b. the information regarding given segment is valid or not
c. the information regarding given page table is valid or not **d. All of the above**

3. POSIX pthread library implementation in Linux schedules_____
a. user threads without the help of the kernel b. user threads with the help of light weight process
b. user threads with the help of kernel d. user threads with the help of heavy weight

4. Segmentations leads to _____
a. External fragmentation b. Internal fragmentation c. Both 1 and 2 d. all of the above

5. Binary Semaphores are used for _____
a. resource allocation b. critical sections **c. mutual exclusion** d. synchronization

6. Which CPU scheduling algorithm is non-preemptive type from the following?
a. Shortest job first scheduling b. Round robin scheduling
c. Priority based scheduling **d. First come first serve based scheduling**

7. What will be the possibility, when process comes in wait or block state?
a. disk operation b. time since expire c. due to the higher priority process arrival **d. All of the above**

8. What is attenuation?
a. Noise of the cable **b. Loss of signal strength** c. Unwanted signals d. None of the above

9. What is the fundamental scheduling block for operating system?
a. Kernel thread b. Process Control Block (PCB) c. Light Weight Process d. User thread

10. What dispatcher does?
a. Select the process from the ready queue b. Run the process from the ready queue
c. Select and run the process from the ready queue d. None of the above

11. Which one is he correct statement regarding thread?
a. Logical extension of the process b. Very similar to the process
c. Threads have there own address space they do not use the process address space
d. Threads share the same address space that is used by the process

12. Which inter processes Communication mechanism is fastest to exchange the data between processes?
a. PIPE b. FIFO **c. Shared Memory** d. Message Queue

13. What linker does?
a. merging object files b. sorting text and data c. resolve symbols across modules d. All of the above

14. Which one is not a system call?
a. excel b. Execve c. Fork d. All of the above

15. What is the use of the program counter register?
a. It points to the next program counter register b. It points to the next instruction statement in the progr
c. It points to the next block of code in the execution d. None of the above

16. What ping command does?
a. It sends ICMP ECHO_REQUEST to network hosts b. It sends ICMP ECHO_REQUEST to network servers only
c. It sends ICMP non ECHO_REQUEST to network host d. It sends ICMP non ECHO_REQUEST to network severs only

17. Paging leads to _____
a. Internal fragmentations b. External fragmentations c. Both 1 & 2 d. All of the above

18. How can we find out the free space size to use on Linux System hard disk partition?
a. df-hs b. freedisk-hs **c. fdisk-hs** d. None of the above

19. How can we get the information about the CPU on the Linux system?
a. cat /usr/cpuinfo **b. cat /proc/cpuinfo** c. cat /root/proc/cpuinfo d. cat /root/usr/cpuinfo

20. Loader is use to _____
a. load the kernel from harddisk to main memory **b. load the appropriate program into the main memory**
c. create the process and load in to the main memory
d. just make the program ready to load and loading in to memory is done by another Process

21. Which statement is true for the deadlock?
a. It is very usual, when a process terminates, it became dead process and his lead to dead lock
b. Deadlock arises when a process try to access a non shareable resources
c. Deadlock arises when process is holding some more resources that are already hold by some other process and no one want to release their resources
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a. It is data structure that represents the process
b. It is a data structure, which is part of the user space, and it represents the process
c. It is a data structure, which is part of the kernel space, and it represents the process
d. It is not a data structure which can be in virtual address space it represent the process

23. By using interrupt which kind of problem will be eliminated?
a. Spooling **b. Polling** c. Job Scheduling d. None of the above

24. Where the main system message log file information get stored?
a. /var/log/message b. /usr/log/message c. /src/log/message d. /root/log/message

25. Which command can be use on Linux platform to shutdown the system?
a. shutdown-r now b. Shutdown c. init 0 d. init 6

26. What type of file system Linux is using?
a. FAT-32 b. NTFS c. LFS d. Ext3

27. What is the kernel architecture for Linux?
a. Micro kernel b. Macro kernel c. Monolithic kernel d. Hybrid kernel

28. Virtual memory with paging mechanism (page-replacement technique) provides
a. runtime relocatability b. memory extension c. memory protection d. All of the above

29. What happens when a page fault occur for a valid legal virtual address?
a. Process will terminate b. Process will block c. None of the above
d. The process will restart after the page is brought to the main memory and page table entry will

30. Copy-on-write concept is_____
a. applicable only for two unrelated processes b. used by the processes those created with the help of exec cal
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34. Virtual memory with paging mechanism (page-replacement technique) provides
a. runtime relocatability b. memory extension c. memory protection **d. All of the above**

35. Which of the following stack operation could result as stack underflow? 1
a. is_empty b. Pop c. Push d. Two or more of the above answers

36. With any Disk Scheduling Algorithms, Performance depends on_____
a. Number of requests b. Number and types of requests c. Types of requests d. None of the above

37. How can we find out the free space size to use Linux system hard disk partition?
a. df-hs b. freedisk-hs **c. fdisk-hs** d. None of the above

38. _____ means that the data added by a subclass are discarded when an object of the subclass is passed or returned by value or from a function expecting a base class object?
a. Slicing b. Up casting c. Down Casting d. Name Mangling

39. Which one is not a part of the kernel?
a. Memory management b. Debuggers management c. Interrupt Management d. Timer and clock management

40. Which CPU scheduling algorithm is non- preemptive type from the following?
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42. Which register is use for memory management?
a. base register b. bound register and stack pointer c. base and bound registeruit d. base and stack pointer register

43. Which system call will you use to get the parent of the process?
a. getp() b. getppid() c. getparentid() d. None of the above

44. What are the resources for the computer system?
a. CPU cycles b. System buses c. Operating system code and data structure d. All of the above

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48. _____ means that the data added by a subclass are discarded when an object of the subclass is passed or returned by value or from a function expecting a base class object?
a. Slicing b. Up casting c. Down Castingd. Name mangling

49. Which statement is false?
a. Spanning tree is a tree associated with a network
b. A minimum spanning tree is a spanning tree organized so that the total edge weight between nodes is minimized
c. Minimum spanning tree of a graph gives the shortest distance between any 2 specified nodes
d. None of the above

50. Which of the following stack operation could result as stack underflow/
a. is_empty b. pop c. push d. Two or more of the above answers

51. An array is having 12 elements, what will be the maximum number of comparisons that
a. 144 b. 12 c. 11 d. 13

52. Normally, when a hardware interrupt occur
a. mode switch and context-saving occur b. context-switch and context-saving occur
c. Both 1 & 2 d. None of the above

53. What happens when a page fault occur for an invalid_illegal virtual address?

a. Process will terminate b. Process will block c. All of the above
d. The process will restart after the page is brought to the main memory and page table entry will update.

54. _____signal generate when we try to access the illegal memory location using invalid pointer
a. SIGSTOP b. SIGSEGV c. SIGTERM d. SIGNULL

55. An array is having 12 elements, what will be the maximum number of comparisons that required in Merge sort?
a.144 b. 11 c. 12 d. 13

56. Which statement is true from the following?
a. A safe state is a deadlock state always b. An unsafe state is a deadlock state always
c. An unsafe state has a probability to be a deadlock state d. All are true

57. If a program that analyses an airline's ticketing transactions runs into an error, it should__
a. write the exceptions into a file and continue analysing transactions b. display an error message and halt processing
c. delete the record containing an error d. terminate the program

58. inode number represents_____
a. the directory on the file system uniquely **b. all types of files on the file system uniquely**
c. all process running on the system d. use of the code in the file system

59. Which statement is true?
a. Cache memory is type of the nonvolatile memory b. RAM stands for reliable access memory
c**. Cache resides between main memory and CPU** d. Hard disk is made up of different layer of the RAM

60. During process execution, which state transaction, is not possible?
a. ready state to running state b. running state to block state c. block state to terminate state
d. block state to ready state

70. Which of the following is a false statement about binary tree?
a. Every binary tree has at least one node b. Every non-empty tree has exactly one root node
c. Every node has at most two children d. Every non-root node has exactly one parent

71. Drivers constitute which part of the Linux Operating System?
a. Kernel b. Shell c. Applications d. GUI

72. Which is the default shell used by the Linux OS?
a. KSH b. BASH c. SSH d. ASH

73. Which command will list out all files including hidden files?
a. ls -l b. ls –A c. ls -r d. ls -a

74. To copy a directory instead of a file which switch is used in cp?

a. -a b. –v c. -R d. -c

74. Which one of the following uses a relative path?
a. /root b. /var/lib/ c. /home/student d. /scripts

75. How does a user find out which directory he is currently working in?
a. cwd b. mv **c. pwd** d. ls

76. Which command is used to rename a file?
a. ren b. cp **c. mv** d. none of the above

77. Which command is used to remove an empty directory?
a. del b. rm –R c. rm **d. rmdir**

78. Which of the following commands is correct?
a. more emp.db | cut -f 3 b. | cut -f 3 -d " " c. more emp.db > cut -f 3 -d " " d. more emp.db > cut -f 3

79. The touch command updates what?
a. modification time and access time b. access time only c. modification time only d. none of the above

80. Which command creates an archive and compresses it as well?
a. tar b. zip c. gzip d. none of the above

81. The command to change the ownership is
a. chgrp b. chmod c. takeown **d. none of the above**

82. chgrp does what?
a. Changes the owner b. Creates a new group c. Changes the access rights **d. none of the above**

83. chmod does what?
a. updates the mode of the file **b. changes the access rights** c. updates the access time of the file d. none of the above

84. How can read, write, execute (rwx) permission be represented in numeric form?
a. 0 **b. 7** c. 5 d. 8

85. Which command is used only to save a file in vi editor?
a.:wq b. :q c. :qa! **D. none of the above(:w)**

86. Which command is used to copy a block of text in vi editor?
a. y b. w c. p **d. none of the above(yy)**

87. Which command is used to start marking lines in vi editor?

a. ALT + v b. CTRL + v c. SHIFT + v **d. none of the above**

88. Which command is used to start marking a region in vi editor?
a. ALT + v **b. CTRL + v** c. SHIFT + v d. none of the above

89. Which should be the first line in every BASH (shell) script?
a. !#/bin/bash b. /bin/bash **c. #!/bin/bash** d. none of the above

90. Which of the following is a positional parameter?
a. &0 **b. $0** c. @0 d. none of the above

91. Which of the following arithmetic expression is correct?
a. $i=((i+1)) b. i=((i+1)) c. i=$((i+1)) **d. none of the above**

92. Which is a valid statement in a shell script?
a. echo "My name is $name" b. 122=I c. $i=13 d. none of the above

93. Which is NOT a valid statement in a shell script?
a. echo b. 122=I c. i=147 d. none of the above

94. Which command can be used to modify the color of the text which appears on screen?
a. echo b. color c. tput d. none of the above

95. The if construct always ends with?
a. end if b. stop c. if **d. none of the above(fi)**

96. The else part of the if construct ends with?
a. end else b. stop c. esle **d. none of the above(fi)**

97. While testing an integer variable what does -lt indicate?
a. last **b. less than** c. last value d) none of the above

98. Which is a valid variable name in a shell script?
a.123var b. var* c. $var **d. none of the above**

99. Which is a valid I/O redirection command?
a. more file.txt > /dev/null b. more file.txt c. more file.txt <> cat d. none of the above

100. User space and kernel space are defined by:
a. Kernel b. Hardware-CPU c. Both 1 & 2 d. Administrator

101. With any Disk Scheduling Algorithms, Performance depends on_____
a. Number of requests b. Number and types of requests c. Types of requests d. None of the above

102. Which one is not a part of the kernel?
a. Memory management b**. Debuggers management** **c**. Interrupt Management d. Timer and clock management

103. How many processes can be active in a monitor at a time?
a**. Any no of processes** b. Only one c. Only two d. None of the above

104. Which register is use for memory management?
a. base register b. bound register and stack pointer c. base and bound registeruit
d. base and stack pointer register

105. Which system call will you use to get the parent of the process?
a. getp() b. getppid() c. getparentid() d. None of the above

106. Conventional RTOS uses_____
a. only kernel space b. only user space c. may be user space and kernel space d. None of the above

107. Which statement is true?
a. Cache memory is type of the nonvolatile memory b. RAM stands for reliable access memory
c. Cache resides between main memory and CPU d. Hard disk is made up of different layer of the RAM

108. What is the use of the program counter register?
a. It points to the next program in the execution b. It points to the next instruction statement in the program
b. It points to the next block of code in the execution d. None of the above

109. What happens when a page fault occur for an invalid_illegal virtual address?
a. Process will terminate b. Process will block c. All of the above
d. The process will restart after the page is brought to the main memory and page table entry will update.

Operating Systems Concepts

1. Which CPU scheduling algorithm is the Preemptive scheduling?
a. First Come First serve (FCFS) b. Round Robin (RR) c. Both d. None of the above.

2. Which CPU scheduling algorithm may suffer from the Starvation Problem
a. Round Robin (RR) b. First Come First serve (FCFS) c. Priority scheduling d. None of the above.

3. A Multithreaded programming Benefits
a. Increase Responsiveness to user. b. Utilization of multiprocessor architecture.
c. Resource Sharing d. All of above

4. Circular waiting is

a. not a necessary condition for deadlock
b. a necessary condition for deadlock, but not a sufficient condition.
c. a sufficient condition d. None of the above.

5. In an operating system using paging , if each 32-bit address is viewed as a 20-bit page identifier plus a 12-bit offset, what is the size of each page?
a. 2^12 =4096 bytes b. 2^20 bytes c. 20 byte d. None of the above.

6. Advantage of memory management using virtual memory
a. More Process can be loaded in the momery, to try to keep the processor busy
b. A process whose image larger than memory can be executed
c. Both 1 & 2 d. None of the above.

7. Following is not a Disk scheduling algorithm:
a. First Come First serve (FCFS) b. Round Robin c. SCAN d. LOOK

8. Which of the following condition is necessary for the deadlock
a. Mutual exclusion and Hold-and-wait b. No preemption and circular wait
c. Both 1 & 2 d. None of the above.

9. LOOK disk scheduling algorithm:
a. Select the request with minimum seek time from current head position.
b. Moves the head from one end of the disk to other end, servicing request along the way.
c. Moves the head only as far as the final request in each direction, then it reverse direction immediately, without first going all the way to the end of the disk.
d. None of the above.

10. Thrashing is:
a. CPU scheduling algorithm b. disk-scheduling algorithm c. High Paging Activity d. None of the above.

11. Spooling
a. In spooling, a process writes its output to a temporary file rather than to an output device, such as a printer
b. In spooling, a process writes its output to an output device, such as a printer
c. Both 1 & 2
d. None of the above.

12. A “critical section” of code is
a. A section that is executed very often, and therefore should be written to run very efficiently.
b. A section of the program that must not be interrupted by the scheduler.
c. A section of the program that is susceptible to race conditions, unless mutual exclusion is enforced.
d. A section of the code executed in kernel mode

13. The OS uses a round robin scheduler. The FIFO queue of ready processes holds three processes

A, B, C in that order. The time quantum is 18 msec. A context switch takes 2 msec. After running for 13 msec, B will block to do a disk read, which will take 30 msec to complete. Trace what will happen over the first 100 msec. What is the CPU efficiency over the first 100 msec?

a.80% b.70% c.90% 4.100%

14. "Time Quantum" in Round Robin Scheduling algorithm:
a. Time between the submission and completion of a process.
b. Time for the disk arm to move to the desired cylinder
c. Maximum time a process may run before being preempted
d. Time required to switch from one running process to another

15. An OS uses a paging system with 1Kbyte pages. A given process uses a virtual address space Of 128K and is assigned 16K of physical memory. How many entries does its page table contain?

a. 1024 b. 128 c. 512 d. 64

16. What is the "turnaround time" in scheduling algorithms?
a. Time for a user to get a reaction to his/her input.
b. Time between the submission and completion of a process
c. Time required to switch from one running process to another
d. Delay between the time that a process blocks and the time that it unblocks

17. "chmod " command in Linux
a. Change the operating system mode b. Change the command mode c. Change Access mode of file
d. None of the above.

18. "grep" Command is used
a. make each column in a document in a separate file b. combine a file and write them into a temp file
c. search a file for lines containing a given format. d. None of the above.

19. A program which is loaded into memory & is executing is commonly referred to as a:
a. Software. b. Job. c. Process. d. Program

20. Bankers Algorithm is used for:
a. Deadlock Characterization b. Deadlock Handling c. Deadlock avoidance d. Deadlock Detection

21. To enable a process to be larger than amount of memory allocated, we use:
a. TLB. b. Fragmentation. c. Overlays. d. None of the above.

22. A _____ is a memory area that stores data while they are transferred between 2 devices:
a. Spool b. Buffer c. Cache d. Kernel

23. The command used to display long listing of file is:
a. ls –l b. ls –a c. ls –t d. ls –r

24. The _____ file stores information about file systems that are mountable during booting:
a. /lib b. /mnt c. /etc/fstab d. /usr/local

25. In Linux ____ command is used to change the current working directory & ____ command is Used to print the current working directory on the screen:
a. cd, pwd b. pwd, cd c. cd, cp d. cp, cd

26. _____ Is a special user who has ultimate privilege on Linux system:
a. Any user b. Super user c. Administrator d. None of the above

27. In Linux, we can display the content of text file by using the command:
a. display b. show c. cat d. All of the above

28. Which command is used to change the group of a file?
a. change group b. chgrp c. changep d. None of the above

29. If more than one process is blocked, the swapper chooses a process with the _____
a. Lowest Priority. b. Highest Priority. c. Medium priority d. No Priority.

30. In Batch processing system the memory allocator are also called as _____
a. Long – term scheduler b. Short – term scheduler c. Medium – term scheduler d. Batch – term scheduler.

31. Wait until the desired sector of a disk comes under the R/W head as the disk rotates. This time Is called as _____
a. seek time b. latency time c. transmission time d. Read/Write time

32. All other processes wanting to enter their respective critical regions are kept waiting in a queue called as _____.
a. Ready queue. b. Waiting queue c. Semaphore queue. d. Critical queue.

33. There would be some time lost in turning attention from process 1 to process 2 is called as _____
a. Process transferring. b. Process switching c. Process turning. d. Context switching

34. Some operating system follows the technique of _____ in which you skip two sector and then number the sector (eg After starting from 0,you skip two sector and then number the sector as 1 and so on…)
a. Leaving. b. Skipping. c. Interleaving. d. Jumping

35. An alternative to the scheme of DMA is called _____.
a. Programmed I/O. b. Mapped I/O. c. I/O Mapped I/o d. I/O Controller

36. The kernel has to keep track of all the pages frames in terms of whether they are free, and if not, the process to which they are allocated. This is done by maintaining another data structure called _____.
a. Page Map Table (PMT). b. Page Frame Data Table (PFDT). c. Page Table Entry (PTE). d. Disk Block Descriptor (DBD).

37. _____ processes tend to be faster, since they do not have to go to the kernel for every Rescheduling (Context switching).
a. heavyweight processes. b. Lightweight processes. c. Kernel processes. d. System processes

38. To know the name of the Shell program we use following command (Bourne Shell).
a. $0 b. $1 c. $2 d. $9

39. To hold the exit status of the previous command _____ command is used.
a. $$ b. $? 3. $/ 4. $

40. To know the Process id of the current process _____ command is used.
a. $$ b. $? c. $/ d. $

41. To know the path of the Shell ____ command is used.
a. PATH b. CDPATH c. SHELL d. PS1

42. To print a file in Linux which command is used
a. print b. ls –p c. lpr d. None

43. To create an additional link to an existing file, which command is used
a. ln b. sbln c. cp d. none

44. The Linux command “cp ch? book”
a. Copies all files starting with ch to the directory book
b. Copies all files with three-character names and starting with ch to the directory book
c. Compress whether a file starting with ch exists in the directory book
d. None of the above

45. Command used in shell to read a line of data from terminals
a. rline b. line c. lread d. None of these

46. In vi, to change a word in command mode, one has to type
a. cw b. wc c. lw d. none

47. What would be the output of the following shell script?

```
foo=10
x=foo
eval y='$'$x
echo $y
```

a. foo b. 10 c. x d. $x

48. In the following shell script
echo "Enter password"
read pas
while ["$pas" != "secrete"]; do
echo "Sorry, try again"
read pas
done
exit 0
a. If the 'pas' matches with 'secrete' in /etc/passwd file then shell script exits.
b. The shell script gives error in while statement
c. Irrespective of the users input, it always prints "Sorry, try again"
d. If user enters secrete then shell script exits otherwise it will read pas once again

49. The output of the following shell script would be:
for var in DAC August 2005
do
echo $var
echo " C-DAC "
done
a. DAC August 2005 b. C-DAC C-DAC C-DAC c. DAC C-DAC August C-DAC 2005 C-DA d. DAC C-DAC

50. fun(){
echo "enter a number"
read num
num=$(($num+1))
echo "$num"
}
fun
exit 0

51.The above shell script
a. takes a number from user, increments it, and prints to the terminal.
b. prints "num" to terminal
c. gives error in the line fun (function call), because it should be written as fun()
d. exits without doing anything

Os re-Exam

1. The computer itself uses _____ language.
a. High level b. Natural c. Assembly **d. Machine**

2. Which of the following is not an operating system?

a. SuSE b. Unix **c. OSD** d. DOS

3. Object modules generated by assemblers may contain unresolved references. These are resolved using other object modules by the _____.

a. linker b. loader c. debugger d. compiler

4. Which of the following is not a necessary condition for a deadlock?

a. Mutual Exclusion b. Circular wait c. No preemption of resources **d. None of the above**

5. An operating system is _____.

a. Integrated software b. CD-ROM software **c. System software** d. Application software

6. Match the operating system abstractions in the left column to the hardware components in the right column

a. Thread 1. Interrupt

b. Virtual Address Space 2. Memory

c. File System 3. CPU

d. Signal 4. Disk

1.a-2, b-4, c-3, d-1

2.a-3, b-2, c-4, d-1

3.a-1, b-2, c-3, d-4

4.a-4, b-2, c-2, d-1

7. Which of the following file streams is not opened automatically in a UNIX program?

a. Standard terminal b. Standard input c. Standard output d. Standard error

8. Transfer of information to and from main memory takes place in terms of _____.

a. Bytes b. Words c. Bits d. Nibbles

9. Virtual Memory _____.

a. is an extremely large main memory b . is an extremely large secondary memory

c. is a type of memory used in supercomputers

d. allows execution of processes that may not be completely in memory

10. Page fault occurs when _____.

a. The page is corrupted by application software b. The page is in main memory

c. The page is not in main memory d. One tries to divide a number by 0

11. An operating system with multiprogramming capability is one that_____.

a. allows several users to use the same program at once by giving each a slice of time
b. loads several independent processes into memory and switches the CPU from one job to another as required
c. runs programs over more than one processor
d. None of the above

12. Where does swap space reside?
a. Disk b. RAM c. ROM d. On-chip cache

13. A 1000 MB hard disk has 512-byte sectors. Each track on the disk has 1000 sectors. The number of tracks on the disk is _____.
a.1024 **b.2048** c.512 d.1000

14. Which of the following is not an advantage provided by shared libraries?
a. They save disk space b. They save space in main memory
c. Multiple versions of the same library can be loaded into main memory **d. None of the above**

15. Spooling is _____.
a. The rewinding of tapes after processing
b. The temporary storage and management of output to printers and other output devices until they can cope with it
c. The recording of all user activities in a log file d. None of the above

16. One function of an operating system is to handle interrupts. Interrupts are_____.
a. a delay in processing due to operating system overload b. messages received from other computers
c. signals from hardware or software requesting attention from the operating system d. None of the above

17. Which of the following is not a solution for the critical section problem?
a. Monitor b. Semaphore c. Critical Region construct **d. Segmentation**

18. System calls are invoked by using _____.
a. Software interrupt b. Polling c. Indirect jump d. A privileged instruction

19. Paging is the transfer of pages between main memory and the _____.
a. Kernel b. Computer system **c. Auxiliary store** d. Output device

20. Which of the following commands is used to count the total number of lines, words and characters contained in a file?
a. count p **b. wc** c. wcount d.countw

21. The size of the virtual memory depends on the size of the _____.
a. Address bus b. Data bus c. Memory bus d. None of the above

22. Computers use the _____ language to process data.

a. Processing b. kilobyte **c. Binary** d. Representational

23. What do you mean by computer interrupt?

a. When a device has data to transfer it makes an interrupt. that means it needs your attention, the processor then stops what it is doing and deals with the device

b. The computer is interrupted by a signal from space saying it needs to close down the illegal application

c. when on word processor, if you type to much the computer makes an interrupt to let you there is no more room to type

d. When someone tries to add to your Conversation

24. Multiprogramming systems_____.

a. Are easier to develop than single programming systems b. Execute each job faster

c. Execute more jobs in the same time period d. Are used only one large mainframe Computers

25. The components that take data are located in the _____.

a. Input devices b. output devices c. system unit d. storage component

26. What is one of the advantages of Paging?

a. It does not suffer from internal fragmentation b. It does not suffer from spooling

c. It does not suffer from external fragmentation d. All of the above

27. The heart of any computer is processing the input in order to provide useful _____.

a. Information b. Output c. Kernel d. Communication

28. Which of the following memory management schemes does not allow multiprogramming? 3

a. Fixed partition b. Dynamic partition **c. Single-user contiguous scheme** d. Relocatable dynamic partitions

29. Which of the following is the correct way of calculating the address of the page frame?

a. Multiply the page frame number by the page frame size b. Divide the page frame size by the page frame number

c. Add the page frame number and the page frame size d. Multiply the page frame number by the Displacement

30. Which of the following concept is best at preventing page faults? 3

a. Paging b. Hit ratios **c. The working set** d. Address location resolution

31.The total effect of all CPU cycles, from both I/O-bound and CPU-bound jobs, approximates which of the following distribution curves?

a. Gaussian distribution b. Poisson distribution c. Lorentzian Distribution d. Random Distribution

32. Which of the following storage allocation scheme results in the problem of fragmentation?

a. Contiguous storage b. Non-contiguous storage c. Indexed storage d. Direct storage

33. Which of the following commands in UNIX gives the user the capability of executing one program from another program?
a. nice b. fork c. exexv d. nohup

34. What does a cycle in a wait-for graph indicate?
a. Deadlock b. Preemptive c. Non-Preemptive 4. None of the above

35. What kind of CPU burst an I/O-bound program would typically have?
a. Long **b. Short** c. Average d. All of the above

36. UNIX uses the _____ page replacement algorithm.
a. LRU b. MRU c. FCFS **d. FIFO**

37. The _____ command will display the absolute pathname for the directory that you are working in. 2
a. dir **b.pwd** c.ls d. whereami

38. Which command would you use to create a sub-directory in your home directory?
a. mkdir b. dir c. cp d. rm

38. Round-robin scheduling is _____.
a. Non- preemptive b. It depends **c. Preemptive** d. None of the above

39. Which command can be used to display the contents of a file on the screen?
a.ls **b.cat** c. dog d. grep

40. What is the Process Input Queue?
a. A collection of processes b. A collection of processes on the disk that have already executed
c .A collection of processes on the disk that are waiting to be brought into memory for execution d. Both 1 and 2

41. What is Swapping?
a. The process of moving a process within memory to and from the backing store
b. The process of moving a process within memory to backing store
c. The process of moving a process to memory
d. All of the above

42. Using the SJF algorithm, which process is allocated the CPU first? 3
a. The process that requests the CPU first b. The process that requests the CPU last
c. The process with the smallest CPU execution time d. None of the above

43. Which of the following is not a scheduling algorithm?

a. First-Come First-Serve **b. Round Bear** c. Shortest Job First d. None of the above

44. Which process is allocated the CPU first in FCFS algorithm?

a. The process that requests the CPU first b. The process that requests the CPU last

c. Processes are allocated the CPU randomly d. None of the above

45. What will be the order when information is processed with direct access?

a. Any order b. Sequential order c. Non-sequential order d. None of the above

46.What will be the order when information is processed with sequential access?

a. Any order **b. Sequential order** c. Non-sequential order d. None of the above

47. Cache memory refers to _____.

a. cheap memory that can be plugged into the mother board to expand main memory

b. fast memory present on the processor chip that is used to store recently accessed data

c. a reserved portion of main memory used to save important data

d. a special area of memory on the chip that is used to save frequently used constants

50.A memory management technique used to improve computer performance is_____.

a. Selecting memory chips based on their cost

b. Storing as much data as possible on disk

c. Using the cache to store data that will most likely be needed soon

d. Preventing data from being moved from the cache to primary memory

51. What do you mean by defragmentation?

a. keyboard that allows for a more natural positioning of your arms and hands.

b. The time it takes to read/write head to move to a specific data track; one of the delays associated with reading or writing data on a computer disk drive.

c. Pointing device you can use instead of a mouse. These devices sense the position of your finger and then move the pointer accordingly.

d. A utility that reduces the amount of fragmentation by physically organizing the contents of the disk to store the pieces of each file contiguously.

52. Which of the following memory management schemes optimizes fragmentation?

a. Single-user contiguous scheme b. Fixed partition c. Dynamic partition **d. Relocatable dynamic partitions**

53. The _____ is used to store the highest location in memory accessible by each program.

54. _____ is the process of collecting fragments of available memory space into contiguous blocks by moving programs and data in a computer's memory or disk.

55. Which of the following are the disadvantages of a fixed partition scheme (choose all that apply)?
a. Requires that the entire program be loaded into memory
b. Requires that the entire program be stored contiguously
c. Requires that the entire program remain in memory until the job is completed
d. Does not allow multiprogramming

56. The phenomenon of partial usage of fixed partitions and the coinciding creation of unused spaces within the partition is called _____

Operating Systems Concepts (60 Minutes)

1. Which one is not a system call?
a. execl b. execve c. fork d. All of the above

2. Binary Semaphores are used for _____.
a. resource allocation b. critical sections c. mutual exclusion d. synchronization

3. What dispatcher does?
a. Select the process from the ready queue b. Run the process from the ready queue
c. Select and run the process from the ready queue d. None of the above

4. Which one is the correct statement regarding thread?
a. Logical extension of the process. b. Very similar to the process.
c. Threads have there own address space they do not use the process address space.
d. Threads share the same address space that is used by the process

5. Which system call will you use to get the parent of the process?
a. getp() b. getppid() c. getparentid() d. None of the above

6. What is process control block?
a. It is data structure that represents the process.
b. It is a data structure, which is part of the user space, and it represents the process.
c. It is a data structure, which is part of the kernel space, and it represents the process.
d. It is not a data structure which can be in virtual address space it represent the process.

7. Which one is not a part of the kernel?

a. Memory management b. Debuggers management
c. Interrupt management d. Timer and clock management

8. What is the kernel architecture for Linux?
a. Micro kernel b. Macro kernel c. Monolithic kernel d. Hybrid kernel

9. Normally, when a hardware interrupt occur.
a. mode switch and context-saving occur. b. context-switch and context-saving occur.
c. Both 1 and 2 d. None of the above

10. What type of file system Linux is using?
a. FAT –32 b. NTFS c. LFS d. Ext3

11. During process execution, which state transaction, is not possible?
a. Ready state to running state b. Running state to block state
c. Block state to terminate state d. Block state to ready state

12. _____ signal generate when we try to access the illegal memory location using invalid pointer.
a. SIGSTOP b. SIGSEGV c. SIGTERM d. SIGNULL

13. What will be the possibility, when process comes in wait or block state?
a. disk operation b. time slice expire c. due to the higher priority process arrival d. All of the above

14. What is the fundamental scheduling block for operating system?
a. Kernel Thread b. Process Control Block (PCB) c. Light Weight Process (LWP) d. User Thread

15. Which command can be use on Linux platform to shutdown the system?
a. shutdown –r now b. shutdown c. init 0d. init 6

16. What is attenuation?
a. Noise on the cable b. Loss of signal strength c. Unwanted signals d. None of the above

17. Which Inter Process Communication mechanism is fastest to exchange the data between processes?
a. PIPE b. FIFO c. Shared Memory d. Message Queue

18. Bootstrap loader is _____.
a. A program, which resides in the user space. b. A program, which resides in ROM.
c. A program, which resides in the RAM. d. A program, which is a module of the kernel space.

19. The page table entry contains _____.

a. the information regarding given page is valid or not.
b. the information regarding given segment is valid or not.
c. the information regarding given page table is valid or not.
d. All of the above

20. POSIX pthread library implementation in Linux schedules _____
a. user threads without the help of the kernel. b. user threads with the help of light weight process.
c. user threads with the help of the kernel. d. user threads with the help of heavy weight process.

21. How many processes can be active in a monitor at a time?
a. Any no of processes b. Only one c. Only two d. None of the above

22. Segmentation leads to _____.
a. External Fragmentation b. Internal Fragmentation c. Both 1 and 2 d. All of the above

23. What is the fundamental scheduling block for operating system?
a. Kernel Thread b. Light Weight Process (LWP) c. Process Control Block (PCB) d. User Thread

24. In static priority based scheduling _____.
1. Priorities are decided at the time of the design and not changed during execution.
2. Priorities are decided at the time of design and may be changed during execution by APIs.
3. Priorities are decided by the scheduler during execution.
4. All of the above

25. Paging leads to _____.
a. Internal Fragmentation b. External Fragmentation c. Both 1 and 2 d. All of the above

26. User space and Kernel space are defined by:
a. Kernel b. Hardware-CPU c. Both 1 and 2 d. Administrator

27. Conventional RTOS uses _____
a. only kernel space. b. only user space. c. may be user space and kernel space. d. None of the above

28. With any Disk Scheduling Algorithms, Performance depends on _____.
a. Number of requests b. Number and types of requests c. Types of requests d. None of the above

29. What happens when a page fault occur for a valid legal virtual address?
a. Process will terminate b. Process will block c. None of the above
d. The process will restart after the page is brought to the main memory and page table entry will update.

30. What happens when a page fault occur for an invalid_illegal virtual address?
a. Process will terminate b. Process will block c. All of the above
d. The process will restart after the page is brought to the main memory and page table entry will update.

31. What ping command does?
a. It sends ICMP ECHO_REQUEST to network hosts.
b. It sends ICMP ECHO_REQUEST to network servers only.
c. It sends ICMP non ECHO_REQUEST to network host.
d. It sends ICMP non ECHO_REQUEST to network servers only.

32. What linker does?
a. merging object files b. sorting text and data c. resolve symbols across modules d. All of the above

33. How can we find out the free space size to use on Linux system hard disk partition?
a. df –hs b. freedisk –hs **c. fdisk –hs** d. None of the above

34. How can we get the information about the CPU on the Linux system?
a. cat /usr/cpuinfo **b. cat /proc/cpuinfo** c. cat /root/proc/cpuinfo d. cat /root/usr/cpuinfo

35. Where the main system message log file information get stored?
a. /var/log/message b. /usr/log/message c. /src/log/message d. /root/log/message

36. Which is the Linux kernel image file from the following and what is location in the file system?
a. kimage and location is /boot b. kernelimage and location is /usr
c. vmliunz and location is /boot d. kimage and location is /usr

37. By using interrupt which kind of problem will be eliminated?
a. Spooling **b. Polling.** c. Job scheduling d. None of the above

38. Virtual memory with paging mechanism (pagereplacement technique) provides.
a. runtime relocatability b. memory extension c. memory protection **d. All of the above**

39. inode number represents _____.
a. the directory on the file system uniquely. **b. all types of files on the file system uniquely.**
c. all process running on the system. d. use of the inode in the file system.

40. Which statement is true?
a. Cache memory is type of the nonvolatile memory b. RAM stands for reliable access memory
c. Cache resides between main memory and CPU d. Hard disk is made up of different layer of the RAM

41. Loader is use to _____.
a. load the kernel from harddisk to main memory.
b. load the appropriate program into the main memory.
c. create the process and load in to the main memory.
d. just make the program ready to load and loading in to memory is done by another process.

42. Which statement is true for the deadlock?
a. It is very usual, when a process terminates, it became dead process and this leads to dead lock
b. Deadlock arises when a process try to access a non shareable resources.
c. Deadlock arises when process is holding some resources and it wants some more resources that are already hold by some other process and no one want to release their resources.
d. Deadlock arises when we try to lock the process and the process is in running state that lock become a dead lock.

43. Which one is default shell for the Linux?
a. csh b. tcsh c. ksh d**. bash**

44. Which statement is true?
a. Process is a passive entity. b. We cannot divide process in further threads.
c. Process is an active instance of the program.
d. Threads do not use the memory space provided by the process.

45. Which CPU scheduling algorithm is non-preemptive type from the following?
a. Shortest job first scheduling. b. Round robin scheduling.
c. Priority based scheduling. **d. First come first serve based scheduling.**

46. Which statement is true from the following?
a. A safe state is a deadlock state always. b. An unsafe state is a deadlock state always.
c. An unsafe state has a probability to be a deadlock state. d. All are true.

47. copy-on-write concept is _____.
a. applicable only for two unrelated processes.
b. used by the processes those created with the help of exec call.
c. used by the any kind of process no restriction.
d. used by the related processes.

48. Which register is use for memory management?
a. base register b. bound register and stack pointer
c. base and bound register d. base and stack pointer register

49. What is the use of the program counter register?
a. It points to the next program in the execution.
b. It points to the next instruction statement in the program.
c. It points to the next block of code in the execution.
d. None of the above

50. What are the resources for the computer system?

a. CPU cycles. b. System buses. c. Operating system code and data structure. **d. All of the above**

Operating Systems

Q.1 Fill in the blanks:

1. Single system image is obtained in case of _____
2. Turnaround Time refers to _____.
3. Short-term Scheduler or CPU-Scheduler_____ scheduler selects the process that is ready to execute to CPU.
4. Banker's algorithm is an example of _Deadlock___ avoidance.
5. _____ is an example of Distributed operating system.
6. _Round Robin_ is an example of timesharing scheduling policy.
7. _____is an example of shareable resource and _____ is an example for non shareable resource.
8. _FIFO_ and _Optimum page replacement algorithm_ 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
11. _____IOCS is _____
12. Throughput in case of multiprogramming is Number of programs processed by it per unit time _.
13. _____is process of modifying the addresses used in the address sensitive
14. instructions of a program such that the program can execute correctly from the designated area of memory.
15. A program is a Passive entity , whereas a process is a Active entity.
16. Mutex is a _Binary__Semaphore.
17. _____ is the coincidence of high paging traffic and low CPU utilization.
18. FCFS stands for __First Come First Served__.
19. The Scheduling policy in case of a batch processing system is
20. _____.
21. Multiprogramming degenerates to _____ system if there is no proper mix of CPU and I/O bound jobs.
22. DMA stands for _ direct memory access __
23. Protection of memory is ensured using _____ and

24. _____.
25. _____ is forceful deallocation of a resource.
26. SPOOLING stands for simultaneous peripheral operations on-line
27. A _____ operating system is an operating system which requires a timely response from a computer system.
28. _____ is a program in execution.
29. DOS is an example of _____ user system.
30. Unix is an example of _____ user system.
31. Unix uses _____ scheduling policy .
32. _____ and _____ are the goals of an operating system.
33. _____ is a distributed operating system.
34. The _____ determines which process is to be executed next.
35. PSW stands for Pogram Status Word
36. Mutex is an acronym for Abbrevations
37. A tape is a Magnetic device.
38. Single system image is obtained in case of _____
39. Turnaround Time refers to _____.
40. Short-term Scheduler or CPU-Scheduler scheduler selects the process that is ready to execute to CPU.
41. _____ is an example of Distributed operating system.
42. Round Robin is an example of timesharing scheduling policy.
43. _____is an example of shareable resource and _____ is an example for nonshareable resource.
44. _____ and _____ are the popular page replacement algorithms.
45. Unix is a _____, _____, and _____ operating system.
46. Single system image is obtained in case of _____
47. Turn around Time refers to _____.

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

73. The _____ determines which process is to be executed next.

74. FAT stands for file allocation table .

Q.2 What do the following Abbreviations stand for?
HRQ=
a. FAT= file allocation table. b. PCB= process control block c. LWP=light weight process d. DMA=direct memory access.

Q.3 Multiple Answer Type Questions:

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 is 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. Priorit echanism y-scheduling with aging**
d. None of the above

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

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 –
a. Operating systems software b. users' applications software c. hardware d. programming environment software

24. 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

25. 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

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

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

28. 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

29. 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

30. The first CPU with P6 architecture was –
a. Pentium b. Pentium Pro c. Pentium II d. Pentium III

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

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

33. 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

34. 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

35. 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

36. CPU performance is based on
a. ALU width b. Clock speed **c. Number of instructions executed per second**

37. How well CPU interacts with the rest of the system
a. Both a and b b. None of the above

38. 80286 the addressing scheme is _____ addressing c
a. 8 bit b. 16 bit c. **24 bit** **d.**28 bit e. 32 bit

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

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

41. 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

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a. The system cannot run any process
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46. 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

47. 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

48. 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.

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

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

51. 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. 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:

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 :

8. “It is possible to support multiprogramming without using timesharing. However it is impractical to support timesharing without using multiprogramming”
9. Justify the statement :
10. “Swapping improves/degrades the efficiency of system utilization”.
11. Describe the cause of READYÅ RUNNING transition.
12. What do you mean by “protection” incase of operating systems? How is it implemented?
13. What is Access Control List? Where is it used?
14. What is a deadlock? How does it occur?
15. What do you mean by scalability?
16. What is a capability list? Where is it used?
17. Comment on the statement:
18. “Interactive processes should have low/high priority”
19. Name secondary storage devices and explain where they are typically used.
20. Which type of scheduler controls the degree of multiprogramming?
21. What is a race condition?
22. Which condition(s) is/are very necessary for a deadlock. Justify your answer.
23. What do you mean by a “kernel”?
24. What do you mean by the “context” of a process?
25. Give one difference between a .COM file and .EXE file in DOS.
26. Name the necessary conditions for a deadlock.
27. What is a critical section?
28. What is IOCS? What are it functions?
29. Explain advantages of distributed operating systems:
30. Name different scheduling policies and explain.
31. Differentiate between the logical address space and physical address space.

32. Explain in brief what you mean by: 1.Multiprogramming 2.Multiprocessing.
33. Name the five typical file operations.
34. Draw a block diagram showing the process transitions.
35. A process can change its state from block state to run state. Is this statement True or False? Justify your answer.
36. Can we prevent deadlocks by denying mutual-exclusion condition? Justify your answer.
37. How many different types of files are possible on UNIX operating system ?
38. Name them.
39. What is demand paging?
40. Explain Distributed processing with the help of examples.
41. Differentiate between contiguous and non-contiguous memory allocation.
42. What Is deadlock? Give an example.

Explain the following:

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

Q.6 Long answer Questions:

1. Consider a memory with 4 page frames, assuming that pages of a process are referenced in the following order:
2. 4,3, 2,1,4,3,5,4,3,2,1,5,2.
3. Show, which would be better FIFO or LRU.
4. Considering the above reference string show how Belady's anomaly occurs in case of FIFO.
5. How is memory re-used?
6. With the help of an example show the mapping from virtual address space to physical address space in case of virtual memory.
7. List the fields of the FCB and explain their use.
8. What is the difference between thread, process and Task?
9. What is the critical section problem? How is it handled?
10. Which condition(s) is/are very necessary for a deadlock? Justify your answer.

11. Discuss the use of Active file tables.
12. What constitutes the environment of a process?
13. What do you mean by “static and dynamic binding”?
14. What do you mean by an Inode? Where is it used?
15. How can a deadlock be avoided? Explain.
16. Write in detail the methods of LRU implementation.
17. Explain State Transition Diagram.
18. What is Inter-process communication?
19. Define the terms: Thread; process; Context of a process.
20. Describe the PC architecture with a block diagram
21. Discuss the various issues involved in Process Management