1. **The dmesg command**
   a) Shows user login logoff attempts
   b) Shows the syslog file for info messages
   c) kernel log messages
   d) Shows the daemon log messages

2. **The command “mknod myfifo b 4 16”**
   a) Will create a block device if user is root
   b) Will create a block device for all users
   c) Will create a FIFO if user is not root
   d) None of the mentioned

3. **Which command is used to set terminal IO characteristic?**
   a) tty
   b) ctty
   c) ptty
   d) stty

4. **Which command is used to record a user login session in a file**
   a) macro
   b) read
   c) script
   d) none of the mentioned

5. **Which command is used to display the operating system name**
   a) os
   b) unix
   c) kernel
   d) uname

6. **Which command is used to display the unix version**
   a) uname -r
   b) uname -n
   c) uname -t
   d) kernel

7. **Which command is used to print a file**
   a) print
   b) ptr
   c) lpr
   d) none of the mentioned

8. **Using which command you find resource limits to the session?**
   a) rlimit
   b) ulimit
   c) setrlimit
   d) getrlimit

9. **Which option of ls command used to view file inode number**
   a) –l
   b) -o
   c) –a
   d) –i

10. **Find / -name '*' will**
    a) List all files and directories recursively starting from /
    b) List a file named * in /
    c) List all files in / directory
    d) List all files and directories in / directory

11. **Which command is used to display the octal value of the text**
    a) octal
    b) text_oct
    c) oct
    d) od

12. **Which command is used to view compressed text file contents**
    a) cat
    b) type
    c) zcat
    d) print

13. **Which command changes a file's group owner**
    a) cgrp
    b) chgrp
    c) change
    d) group

14. **Which command is used to extract intermediate result in a pipeline**
    a) tee
    b) extract
    c) exec
    d) none of the mentioned

15. **Which command is used to extract a column from a text file**
    a) paste
    b) get
    c) cut
    d) tar

16. **Which command is used to display disk consumption of a specific directory**
    a) du
    b) ds
    c) dd
    d) dds

17. **Which command is used to perform backup in unix?**
    a) backup
    b) cpio
    c) zip
    d) gzip

18. **Which command creates an empty file if file does not exist?**
    a) cat
    b) touch
    c) ed
    d) read

19. **Which option of rm command is used to remove a directory with all its subdirectories**
    a) –b
    b) –o
    c) –p
    d) –r

20. **Which command is used to identify file type?**
    a) Type
    b) File
    c) Finfo
    d) Info

21. **Command used to determine the path of an executable file is**
    a) which
    b) where
    c) wexec
    d) what

22. **Command used to count number of character in a file is**
    a) grep
    b) wc
    c) count
    d) cut

23. **Which of these commands could you use to show one page of output at a time?**
    a) less
    b) sed
    c) pause
    d) grep

24. **Which commands will give you information about how much disk space each file in the current directory uses?**
    a) ls -l
    b) ls -la
    c) du
    d) ls -a

25. **Which of the following command output contains userid?**
    a) ls
    b) help
    c) date
    d) ls –l

26. **Which command is used to display all the files including hidden files in your current and its subdirectories ?**
    a) ls –aR
    b) ls –a
    c) ls –R
    d) ls –l

27. **Which of the following commands can be used to copy files across systems?**
    a) ssh
    b) telnet
    c) rsh
    d) ftp

28. **pwd command displays**
    a) user password
    b) password file content
    c) present working directory
    d) none of the mentioned

29. Which of the following commands can be used to change default permissions for files and directories at the time of creation

a) Chmod
b) Chown
c) Umask
d) Chgrp

30. Which tar command option is used to list the files in a tape archive format?

a) cvf
b) tvf
c) xvf
d) ovf

31. Which of the following commands will allow the user to search contents of a file for a particular pattern

a) touch
b) grep
c) find
d) ls

32. Write the command to display the current date in the form dd/mm/yyyy.

a) date +%d/%m/%Y
b) date +"%d/%m/%Y"
c) date +/%d/%m/20%y
d) date +"/%d/%m/20%y"

33. The command syntax to display the file 'sample.txt' one page at a time is

a) man sample.txt>more
b) cat sample.txt<more
c) cat sample.txt|more
d) none of the mentioned

34. Which one shows the name of the operating system?

a) uname -n
b) uname -r
c) uname -o
d) uname –m

35. How do you add (append) a file "file1" to the example.tar file

a) no you cannot add a file to example.tar
b) tar -cvf example.tar file1
c) tar -rvf file1 example.tar
d) tar -evf file1 example.tar

36. How to execute ls command inside a vi editor?

a) !ls
b) :ls
c) :!ls
d) we can't execute

37. Which command gives the first byte where the difference is in the file1 & file2?

a) diff
b) cmp
c) comm
d) ls -a

38. To open a file file1 with cursor at line number 4

a) vi +num file1
b) vi +set num file1
c) vi + "set num" file1
d) vi +/se nu file1

39. sed is a command typically used for

a) Perform complex calculations
b) Perform FIFO based non-blocking I/O
c) Modify/print selective contents of a file
d) None of the mentioned

40. What communication command provides communication to another user logged on by writing to the bottom of their terminal?

a) talk
b) write
c) chat
d) transmit

41. Which screen manipulation command sets the screen back to normal?

a) tput cup
b) tput smso
c) tput rmso
d) tput blink

42. Which command will you use to see the available routes?

a) show route
b) route status
c) netstat -r
d) none of the mentioned

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
d. Deadlock arises when we try to lock the process and the process is in running state that lock become a dead lock

22. 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

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
c. used by the any kind of process no restriction **d. used by the related processes**

31. 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

32. 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

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

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?
a. Shortest job first scheduling b. Round robin scheduling c. Priority based scheduling
d. First come first serve based scheduling

41. 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

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?
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46. 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

47. 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 all its headers and header files
a. This pointer b. Opaque pointer c. Function pointer d. Nested pointer

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
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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

42. 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
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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

EOS-MCQ

1. **For which of the following offset can be positive or negative?**
   a) SEEK_SET
   b) SEEK_END
   c) SEEK_CUR
   d) All of the above
   e) None of the above

2. **In which of the IPC mechanism, data is not copied from user space to kernel space and vice a versa?**
   a) Pipe
   b) Message queue
   c) Shared memory
   d) Socket

3. **A bootloader is responsible for**
   i. loading an operating system kernel and its components
   ii. loading supporting infrastructure into memory
   iii. beginning the kernel's execution
   a) i and ii
   b) i and iii
   c) ii and iii
   d) All of the above

4. **In which of the following state change in child process, performing wait allows the system to release the resources associated with child process?**
   a) the child terminated
   b) the child was stopped by a signal
   c) the child was resumed by a signal
   d) All of the above

5. **Which of the following is not used to examine and change the signal action?**
   a) Signal
   b) Sigaction
   c) Sigprocmask
   d) All of the above

6. **Select the value of mode if O_CREAT flag is provided in open system call to give permissions as user - read, write; group - read; others – nothing**
   a) 0640
   b) 0644
   c) 0460
   d) 0464

7. **Select correct option for mutex.**
   a) A thread can lock mutex twice.
   b) thread locking mutex is owner of that mutex.

c) Owner cannot unlock the mutex.
d) None of the above

8. **What is internal fragmentation?**
   a) Process is not utilizing the whole partition allocated to it.
   b) process is utilizing the whole partition allocated to it.
   c) amount of space required for process is not available.
   d) amount of space required for process is available, but not contiguous.

9. **Physical memory : _____ : : Logical Memory : _____**
   a) Pages, Frames
   b) Frames, Pages
   c) Pages, Fragments
   d) fragments, Frames

10. **If the size of logical address space is 2 to the power of m, and a page size is 2 to the power of n addressing units, then the high orderbits of a logical address designate the page number, and the low order bits designate the page offset.**
    a) m, n
    b) n, m
    c) m – n, m
    d) m – n, n

11. **LRU page replacement algorithm suffers from Belady's anomaly.**
    a) true
    b) false

12. **Which of the following is journaling file system**
    a) JFS
    b) UFS
    c) ext2
    d) ext3

13. **Thrashing**
    a) reduces page I/O
    b) decreases the degree of multiprogramming
    c) implies excessive page I/O
    d) improves the system performance

14. **While fork(), the child's set of pending signals is initially _____.**
    a) filled with same as parent
    b) empty
    c) filled except masked signals in parent
    d) None of the above

15. The child does not inherit _____.

a) semaphore adjustments from its parent
b) its parent's memory locks
c) timers from its parent
d) All of the above
e) None of the above

16. Which of the following architecture does not support embedded operating system?

a) semaphore adjustments from its parent
b) its parent's memory locks
c) timers from its parent
d) All of the above
e) None of the above

17. _____ provide the information about the existence of files, their location on secondary memory, their current status and other attributes.

a) Memory Table
b) I/O Table
c) File Tables
d) Process Tables

18.
```
#include <stdio.h>
#include <unistd.h>
int main()
{
        fork();
        fork();
        fork();
        printf(" A New Process Created."); return 0;
}
```
How many times Above message "A New Process Created" is printed.

a) 1
b) 3
c) 8
d) 16

19. sigprockmask() system call does _____

a) change the process signal mask.
b) retrieve the existing mask
c) Both of the above
d) None of the above

20. Spinlocks are intended to provide _____ only.

a) Mutual Exclusion
b) Bounded Waiting
c) Aging
d) Progress

21. Which of the following not belong to exec() family?

a) execv();
b) execvp();
c) execvpe();
d) execlv();

22. msgsnd() returns an integer. which of the following is true statement?

a) Return value > 1 indicates a correct send.
b) Return value = 0 indicates a correct send
c) Both of above
d) Return value = -1 indicates an error has occurred

23. _____ is a technique of gradually increasing the priority of the processes that wait in the system for a long time.

a) Starvation
b) Waiting queue
c) Aging
d) None of the above

24. Multiple source files are compiled together to form a single kernel binary image. Such a kernel called as _____.

a) Micro-kernel
b) Monolithic kernel
c) Modular kernel
d) Hybrid kernel

25. Named pipe or FIFO can be created by _____ command.

a) pipe
b) mkfifo
c) mkpipe
d) makefifo

26. Bankers' algorithm is an example of _____.

a) deadlock prevention
b) deadlock avoidance
c) deadlock detection
d) deadlock recovery

27. Preemption is _____.

a) forced deallocation of the CPU from a program which is executing on the CPU
b) release of CPU by a program after the completing its task
c) forced allotment of CPU by a program to itself
d) a program is terminating itself due to detection of error

28. Which one of the following bootloaders is not used by linux?

a) GRUB
b) LILO
c) NTLDR
d) None of the mentioned

29. Each thread has its own user stack and no kernel stack.

a) True
b) False

30. 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

31. Mutex Functionality :

a) based up on locking mechanism
b) based up on signalling mechanism
c) both A and B
d) None of the above

32. On success, pthread_join() returns :

a) 0
b) 1
c) Error No
d) None of the above

33. fork() returns non zero value in child process and zero in parent process.

a) False
b) True

34. Select odd option from below

a) execl("./cmdline", "cmdline", "one", "two", "three", "four", NULL);
b) char *args[] = { "cmdline", "one", "two", "three", NULL }; execv("./cmdline", args);
c) execlp("ps", "ps", "-e", "-o", "pid,ppid,cmd");
d) None of the above

35. Which is Fastest IPC mechanism

a) FIFO
b) Pipe
c) Shared Memory
d) Queue

36. The two ways of aborting processes and eliminating deadlocks are _____.

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 the mentioned

37. The segment limit contains the _____.

a) starting logical address of the process
b) starting physical address of the segment in memory
c) segment length
d) none of the mentioned

38. In the Zero capacity queue _____

a) the queue can store at least one message
b) the sender blocks until the receiver receives the message
c) the sender keeps sending and the messages don't wait in the queue
d) none of the mentioned

39. What will happen if a non-recursive mutex is locked more than once?

a) Starvation
b) Deadlock
c) Aging
d) Signaling

40. The signal operation of the semaphore basically works on the basic _____ system call.

a) continue()
b) start()
c) wakeup()
d) getup()

41. What is an operating system?

a) collection of programs that manages hardware resources
b) system service provider to the application programs
c) interface between the hardware and application programs
d) all of the mentioned

42. To access the services of operating system, the interface is provided by the _____

a) System calls
b) API

c) Library
d) Assembly instructions

43. **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 cannot be loaded in running operating system
d) kernel remains in the memory during the entire computer session

44. **Which one of the following error will be handle by the operating system?**
a) power failure
b) lack of paper in printer
c) connection failure in the network
d) all of the mentioned

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

46. **In Operating Systems, which of the following is/are CPU scheduling algorithms?**
a) Round Robin
b) Shortest Job First
c) Priority
d) All of the mentioned

47. **If a process fails, most operating system write the error information to a _____**
a) log file
b) another running process
c) new file
d) none of the mentioned

48. **Which facility dynamically adds probes to a running system, both in user processes and in the kernel?**
a) DTrace
b) DLocate
c) DMap
d) DAdd

49. **Which one of the following is not a real time operating system?**
a) VxWorks
b) QNX
c) RTLinux
d) Palm OS

50. The MacOS X has _____

a) monolithic kernel
b) hybrid kernel
c) microkernel
d) monolithic kernel with modules

51. The systems which allow only one process execution at a time, are called _____

a) uniprogramming systems
b) uniprocessing systems
c) unitasking systems
d) none of the mentioned

52. In operating system, each process has its own _____

a) address space and global variables
b) open files
c) pending alarms, signals and signal handlers
d) all of the mentioned

53. In Unix, Which system call creates the new process?

a) fork
b) create
c) new
d) none of the mentioned

54. A process can be terminated due to _____

a) normal exit
b) fatal error
c) killed by another process
d) all of the mentioned

55. 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

56. What is interprocess communication?

a) communication within the process
b) communication between two process
c) communication between two threads of same process
d) none of the mentioned

57. A set of processes is deadlock if _____

a) each process is blocked and will remain so forever

b) each process is terminated

c) all processes are trying to kill each other

d) none of the mentioned

58. A process stack does not contain _____

a) Function parameters

b) Local variables

c) Return addresses

d) PID of child process

59. Which system call can be used by a parent process to determine the termination of child process?

a) wait

b) exit

c) fork

d) get

60. The address of the next instruction to be executed by the current process is provided by the _____

a) CPU registers

b) Program counter

c) Process stack

d) Pipe

61. A Process Control Block(PCB) does not contain which of the following?

a) Code

b) Stack

c) Bootstrap program

d) Data

62. The number of processes completed per unit time is known as _____

a) Output

b) Throughput

c) Efficiency

d) Capacity

63. 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

64. Which of the following is not the state of a process?

a) New

b) Old

c) Waiting

d) Running

65. What is a Process Control Block?

a) Process type variable

b) Data Structure

c) A secondary storage section

d) A Block in memory

66. The entry of all the PCBs of the current processes is in _____

a) Process Register

b) Program Counter

c) Process Table

d) Process Unit

67. What is the degree of multiprogramming?

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

68. A single thread of control allows the process to perform _____

a) only one task at a time

b) multiple tasks at a time

c) only two tasks at a time

d) all of the mentioned

69. What is the objective of multiprogramming?

a) Have a process running at all time

b) Have multiple programs waiting in a queue ready to run

c) To increase CPU utilization

d) None of the mentioned

70. Which of the following do not belong to queues for processes?

a) Job Queue

b) PCB queue

c) Device Queue

d) Ready Queue

71. When the process issues an I/O request _____

a) It is placed in an I/O queue

b) It is placed in a waiting queue

c) It is placed in the ready queue

d) It is placed in the Job queue

72. What will happen when a process terminates?

a) It is removed from all queues

b) It is removed from all, but the job queue

c) Its process control block is de-allocated

d) Its process control block is never de-allocated

73. What is a long-term scheduler?

a) It selects processes which have to be brought into the ready queue

b) It selects processes which have to be executed next and allocates CPU

c) It selects processes which heave to remove from memory by swapping

d) None of the mentioned

74. If all processes I/O bound, the ready queue will almost always be _____ and the Short term Scheduler will have a _____ to do.

a) full, little

b) full, lot

c) empty, little

d) empty, lot

75. What is a medium-term scheduler?

a) It selects which process has to be brought into the ready queue

b) It selects which process has to be executed next and allocates CPU

c) It selects which process to remove from memory by swapping

d) None of the mentioned

76. What is a short-term scheduler?

a) It selects which process has to be brought into the ready queue

b) It selects which process has to be executed next and allocates CPU

c) It selects which process to remove from memory by swapping

d) None of the mentioned

77. The primary distinction between the short term scheduler and the long term scheduler is _____

a) The length of their queues

b) The type of processes they schedule

c) The frequency of their execution

d) None of the mentioned

78. The only state transition that is initiated by the user process itself is _____

a) block

b) wakeup

c) dispatch

d) none of the mentioned

79. In a time-sharing operating system, when the time slot given to a process is completed, the process goes from the running state to the _____

a) Blocked state

b) Ready state

c) Suspended state

d) Terminated state

80. In a multiprogramming environment _____

a) the processor executes more than one process at a time

b) the programs are developed by more than one person

c) more than one process resides in the memory

d) a single user can execute many programs at the same time

81. Suppose that a process is in "Blocked" state waiting for some I/O service. When the service is completed, it goes to the _____

a) Running state

b) Ready state

c) Suspended state

d) Terminated state

82. The context of a process in the PCB of a process does not contain _____

a) the value of the CPU registers

b) the process state

c) memory-management information

d) context switch time

83. Which of the following need not necessarily be saved on a context switch between processes?

a) General purpose registers

b) Translation lookaside buffer

c) Program counter

d) All of the mentioned

84. Which of the following does not interrupt a running process?

a) A device

b) Timer

c) Scheduler process

d) Power failure

85. Which process can be affected by other processes executing in the system?

a) cooperating process

b) child process

c) parent process

d) init process

86. When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place is called _____

a) dynamic condition

b) race condition

c) essential condition

d) critical condition

87. If a process is executing in its critical section, then no other processes can be executing in their critical section. What is this condition called?

a) mutual exclusion

b) critical exclusion

c) synchronous exclusion

d) asynchronous exclusion

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

a) thread

b) pipe

c) semaphore

d) socket

89. A semaphore is a shared integer variable _____

a) that can not drop below zero

b) that can not be more than zero

c) that can not drop below one

d) that can not be more than one

90. Mutual exclusion can be provided by the _____

a) mutex locks

b) binary semaphores

c) both mutex locks and binary semaphores

d) none of the mentioned

91. Process synchronization can be done on _____

a) hardware level

b) software level

c) both hardware and software level

d) none of the mentioned

92. A monitor is a module that encapsulates _____

a) shared data structures
b) procedures that operate on shared data structure
c) synchronization between concurrent procedure invocation
d) all of the mentioned

93. To enable a process to wait within the monitor _____

a) a condition variable must be declared as condition
b) condition variables must be used as boolean objects
c) semaphore must be used
d) all of the mentioned

94. Restricting the child process to a subset of the parent's resources prevents any process from _____

a) overloading the system by using a lot of secondary storage
b) under-loading the system by very less CPU utilization
c) overloading the system by creating a lot of sub-processes
d) crashing the system by utilizing multiple resources

95. A parent process calling ____ system call will be suspended until children processes terminate.

a) wait
b) fork
c) exit
d) exec

96. Cascading termination refers to termination of all child processes if the parent process terminates _____

a) Normally
b) Abnormally
c) Normally or abnormally
d) None of the mentioned

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

a) Multiprocessing, Multiprogramming
b) Multiprogramming, Uniprocessing
c) Multiprogramming, Multiprocessing
d) Uniprogramming, Multiprocessing

98. In UNIX, each process is identified by its _____

a) Process Control Block
b) Device Queue
c) Process Identifier
d) None of the mentioned

99. In UNIX, the return value for the fork system call is ____ for the child process and ____ for the parent process.

a) A Negative integer, Zero
b) Zero, A Negative integer
c) Zero, A nonzero integer
d) A nonzero integer, Zero

100. The child process can _____

a) be a duplicate of the parent process
b) never be a duplicate of the parent process
c) cannot have another program loaded into it
d) never have another program loaded into it

101. The child process completes execution, but the parent keeps executing, then the child process is known as _____

a) Orphan
b) Zombie
c) Body
d) Dead

102. What is Interprocess communication?

a) allows processes to communicate and synchronize their actions when using the same address space
b) allows processes to communicate and synchronize their actions
c) allows the processes to only synchronize their actions without communication
d) none of the mentioned

103. Message passing system allows processes to _____

a) communicate with each other without sharing the same address space
b) communicate with one another by resorting to shared data
c) share data
d) name the recipient or sender of the message

104. Which of the following two operations are provided by the IPC facility?

a) write & delete message
b) delete & receive message
c) send & delete message
d) receive & send message

105. Messages sent by a process _____

a) have to be of a fixed size
b) have to be a variable size
c) can be fixed or variable sized
d) none of the mentioned

106. The link between two processes P and Q to send and receive messages is called _____

a) communication link
b) message-passing link
c) synchronization link
d) all of the mentioned

107. Which of the following are TRUE for direct communication?

a) A communication link can be associated with N number of process(N = max. number of processes supported by system)
b) A communication link is associated with exactly two processes
c) Exactly N/2 links exist between each pair of processes(N = max. number of processes supported by system)
d) Exactly two link exists between each pair of processes

108. In indirect communication between processes P and Q _____

a) there is another process R to handle and pass on the messages between P and Q
b) there is another machine between the two processes to help communication
c) there is a mailbox to help communication between P and Q
d) none of the mentioned

109. In the non blocking send _____

a) the sending process keeps sending until the message is received
b) the sending process sends the message and resumes operation
c) the sending process keeps sending until it receives a message
d) none of the mentioned

110. The Zero Capacity queue _____

a) is referred to as a message system with buffering
b) is referred to as a message system with no buffering
c) is referred to as a link
d) none of the mentioned

111. Bounded capacity and Unbounded capacity queues are referred to as _____

a) Programmed buffering
b) Automatic buffering
c) User defined buffering
d) No buffering

112. The initial program that is run when the computer is powered up is called _____

a) boot program
b) bootloader
c) initializer
d) bootstrap program

113. How does the software trigger an interrupt?

a) Sending signals to CPU through bus
b) Executing a special operation called system call
c) Executing a special program called system program
d) Executing a special program called interrupt trigger program

114. What is a trap/exception?

a) hardware generated interrupt caused by an error
b) software generated interrupt caused by an error
c) user generated interrupt caused by an error
d) none of the mentioned

115. What is an ISR?

a) Information Service Request
b) Interrupt Service Request
c) Interrupt Service Routine
d) Information Service Routine

116. What is an interrupt vector?

a) It is an address that is indexed to an interrupt handler
b) It is a unique device number that is indexed by an address
c) It is a unique identity given to an interrupt
d) None of the mentioned

117. DMA is used for _____

a) High speed devices(disks and communications network)
b) Low speed devices
c) Utilizing CPU cycles
d) All of the mentioned

118. In a memory mapped input/output _____

a) the CPU uses polling to watch the control bit constantly, looping to see if a device is ready
b) the CPU writes one data byte to the data register and sets a bit in control register to show that a byte is available
c) the CPU receives an interrupt when the device is ready for the next byte
d) the CPU runs a user written code and does accordingly

119. In a programmed input/output(PIO) _____

a) the CPU uses polling to watch the control bit constantly, looping to see if a device is ready

b) the CPU writes one data byte to the data register and sets a bit in control register to show that a byte is available

c) the CPU receives an interrupt when the device is ready for the next byte

d) the CPU runs a user written code and does accordingly

120. In an interrupt driven input/output _____

a) the CPU uses polling to watch the control bit constantly, looping to see if a device is ready

b) the CPU writes one data byte to the data register and sets a bit in control register to show that a byte is available

c) the CPU receives an interrupt when the device is ready for the next byte

d) the CPU runs a user written code and does accordingly

121. In the layered approach of Operating Systems _____

a) Bottom Layer(0) is the User interface

b) Highest Layer(N) is the User interface

c) Bottom Layer(N) is the hardware

d) Highest Layer(N) is the hardware

122. How does the Hardware trigger an interrupt?

a) Sending signals to CPU through a 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

123. Which operation is performed by an interrupt handler?

a) Saving the current state of the system

b) Loading the interrupt handling code and executing it

c) Once done handling, bringing back the system to the original state it was before the interrupt occurred

d) All of the mentioned

124. Which module gives control of the CPU to the process selected by the short-term scheduler?

a) dispatcher

b) interrupt

c) scheduler

d) none of the mentioned

125. 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

126. 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

127. 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

128. 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

129. 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

130. Which algorithm is defined in Time quantum?

a) shortest job scheduling algorithm
b) round robin scheduling algorithm
c) priority scheduling algorithm
d) multilevel queue scheduling algorithm

131. Process are classified into different groups in _____

a) shortest job scheduling algorithm
b) round robin scheduling algorithm
c) priority scheduling algorithm
d) multilevel queue scheduling algorithm

132. In multilevel feedback scheduling algorithm _____

a) a process can move to a different classified ready queue

b) classification of ready queue is permanent

c) processes are not classified into groups

d) none of the mentioned

133. Which one of the following can not be scheduled by the kernel?

a) kernel level thread

b) user level thread

c) process

d) none of the mentioned

134. CPU scheduling is the basis of _____

a) multiprocessor systems

b) multiprogramming operating systems

c) larger memory sized systems

d) none of the mentioned

135. With multiprogramming _____ is used productively.

a) time

b) space

c) money

d) all of the mentioned

136. What are the two steps of a process execution?

a) I/O & OS Burst

b) CPU & I/O Burst

c) Memory & I/O Burst

d) OS & Memory Burst

137. 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

138. 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

139. In the following cases non – preemptive scheduling occurs?

a) When a process switches from the running state to the ready state

b) When a process goes from the running state to the waiting state

c) When a process switches from the waiting state to the ready state

d) All of the mentioned

140. 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 the mentioned

141. What is Dispatch latency?

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 the mentioned

142. Scheduling is done so as to _____

a) increase CPU utilization

b) decrease CPU utilization

c) keep the CPU more idle

d) none of the mentioned

143. Scheduling is done so as to _____

a) increase the throughput

b) decrease the throughput

c) increase the duration of a specific amount of work

d) none of the mentioned

144. What is Turnaround time?

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

145. Scheduling is done so as to _____

a) increase the turnaround time

b) decrease the turnaround time

c) keep the turnaround time same

d) there is no relation between scheduling and turnaround time

146. What is Waiting time?

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

147. 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 the mentioned

148. What is Response time?

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 the mentioned

149. Round robin scheduling falls under the category of _____

a) Non-preemptive scheduling

b) Preemptive scheduling

c) All of the mentioned

d) None of the mentioned

150. With round robin scheduling algorithm in a time shared system _____

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

151. 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 the mentioned

152. Complex scheduling algorithms _____

a) are very appropriate for very large computers

b) use minimal resources

c) use many resources

d) all of the mentioned

153. What is 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

154. 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

155. What is Scheduling?

a) allowing a job to use the processor

b) making proper use of processor

c) all of the mentioned

d) none of the mentioned

156. There are 10 different processes running on a workstation. Idle processes are waiting for an input event in the input queue. Busy processes are scheduled with the Round-Robin time sharing method. Which out of the following quantum times is the best value for small response times, if the processes have a short runtime, e.g. less than 10ms?

a) tQ = 15ms

b) tQ = 40ms

c) tQ = 45ms

d) tQ = 50ms

157. Orders are processed in the sequence they arrive if _____ rule sequences the jobs.

a) earliest due date

b) slack time remaining

c) first come, first served

d) critical ratio

158. Which of the following algorithms tends to minimize the process flow time?

a) First come First served

b) Shortest Job First

c) Earliest Deadline First

d) Longest Job First

159. 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

160. Which of the following statements are true?

I. Shortest remaining time first scheduling may cause starvation

II. Pre-emptive scheduling may cause starvation

III. Round robin is better than FCFS in terms of response time

a) I only

b) I and III only

c) II and III only

d) I, II and III

161. Which is the most optimal scheduling algorithm?

a) FCFS – First come First served

b) SJF – Shortest Job First

c) RR – Round Robin

d) None of the mentioned

162. The real difficulty with SJF in short term scheduling is _____

a) it is too good an algorithm

b) knowing the length of the next CPU request

c) it is too complex to understand

d) none of the mentioned

163. The FCFS algorithm is particularly troublesome for _____

a) time sharing systems

b) multiprogramming systems

c) multiprocessor systems

d) operating systems

164. Preemptive Shortest Job First scheduling is sometimes called _____

a) Fast SJF scheduling

b) EDF scheduling – Earliest Deadline First

c) HRRN scheduling – Highest Response Ratio Next

d) SRTN scheduling – Shortest Remaining Time Next

165. An SJF algorithm is simply a priority algorithm where the priority is _____

a) the predicted next CPU burst

b) the inverse of the predicted next CPU burst

c) the current CPU burst

d) anything the user wants

166. Choose one of the disadvantages of the priority scheduling algorithm?

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 the mentioned

167. What is 'Aging'?

a) keeping track of cache contents
b) keeping track of what pages are currently residing in memory
c) keeping track of how many times a given page is referenced
d) increasing the priority of jobs to ensure termination in a finite time

168. A solution to the problem of indefinite blockage of low – priority processes is _____

a) Starvation
b) Wait queue
c) Ready queue
d) Aging

169. Which of the following scheduling algorithms gives minimum average waiting time?

a) FCFS
b) SJF
c) Round – robin
d) Priority

170. Concurrent access to shared data may result in _____

a) data consistency
b) data insecurity
c) data inconsistency
d) none of the mentioned

171. A situation where several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which access takes place is called _____

a) data consistency
b) race condition
c) aging
d) starvation

172. **The segment of code in which the process may change common variables, update tables, write into files is known as _____**
    a) program
    b) critical section
    c) non – critical section
    d) synchronizing

173. **Which of the following conditions must be satisfied to solve the critical section problem?**
    a) Mutual Exclusion
    b) Progress
    c) Bounded Waiting
    d) All of the mentioned

174. **Mutual exclusion implies that _____**
    a) if a process is executing in its critical section, then no other process must be executing in their critical sections
    b) if a process is executing in its critical section, then other processes must be executing in their critical sections
    c) if a process is executing in its critical section, then all the resources of the system must be blocked until it finishes execution
    d) none of the mentioned

175. **Bounded waiting implies that there exists a bound on the number of times a process is allowed to enter its critical section _____**
    a) after a process has made a request to enter its critical section and before the request is granted
    b) when another process is in its critical section
    c) before a process has made a request to enter its critical section
    d) none of the mentioned

176. **A minimum of ____ variable(s) is/are required to be shared between processes to solve the critical section problem.**
    a) one
    b) two
    c) three
    d) four

177. In the bakery algorithm to solve the critical section problem _____

a) each process is put into a queue and picked up in an ordered manner

b) each process receives a number (may or may not be unique) and the one with the lowest number is served next

c) each process gets a unique number and the one with the highest number is served next

d) each process gets a unique number and the one with the lowest number is served next

178. An un-interruptible unit is known as _____

a) single

b) atomic

c) static

d) none of the mentioned

179. TestAndSet instruction is executed _____

a) after a particular process

b) periodically

c) atomically

d) none of the mentioned

180. 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 the mentioned

181. What are the two atomic operations permissible on semaphores?

a) wait

b) stop

c) hold

d) none of the mentioned

182. What are Spinlocks?

a) CPU cycles wasting locks over critical sections of programs

b) Locks that avoid time wastage in context switches

c) Locks that work better on multiprocessor systems

d) All of the mentioned

183. What is the main disadvantage of spinlocks?

a) they are not sufficient for many process

b) they require busy waiting

c) they are unreliable sometimes

d) they are too complex for programmers

184. **The wait operation of the semaphore basically works on the basic _____ system call.**
a) stop()
b) block()
c) hold()
d) wait()

185. **The signal operation of the semaphore basically works on the basic _____ system call.**
a) continue()
b) wakeup()
c) getup()
d) start()

186. **If the semaphore value is negative _____**
a) its magnitude is the number of processes waiting on that semaphore
b) it is invalid
c) no operation can be further performed on it until the signal operation is performed on it
d) none of the mentioned

187. **The code that changes the value of the semaphore is _____**
a) remainder section code
b) non – critical section code
c) critical section code
d) none of the mentioned

188. **The following program consists of 3 concurrent processes and 3 binary semaphores. The semaphores are initialized as S0 = 1, S1 = 0, S2 = 0.**

```
Process P0
while(true)
{
    wait(S0);
    print '0';
    release(S1);
    release(S2);
}

Process P1
wait(S1);
release(S0);

Process P2
wait(S2);
release(S0);
```

How many times will P0 print ‘0’?
a) At least twice
b) Exactly twice

c) Exactly thrice
d) Exactly once

189. Each process Pi, i = 0,1,2,3,……,9 is coded as follows.

```
repeat
 P(mutex)
{Critical Section}
 V(mutex)
 forever
```

The code for P10 is identical except that it uses V(mutex) instead of P(mutex). What is the largest number of processes that can be inside the critical section at any moment (the mutex being initialized to 1)?

a) 1
b) 2
c) 3
d) None of the mentioned

190. Two processes, P1 and P2, need to access a critical section of code. Consider the following synchronization construct used by the processes.

```
Process P1 :
while(true)
{
w1 = true;
while(w2 == true);
Critical section
w1 = false;
}
Remainder Section

Process P2 :
while(true)
{
w2 = true;
while(w1 == true);
Critical section
w2 = false;
}
Remainder Section
```

Here, w1 and w2 have shared variables, which are initialized to false. Which one of the following statements is TRUE about the above construct?

a) It does not ensure mutual exclusion
b) It does not ensure bounded waiting
c) It requires that processes enter the critical section in strict alternation
d) It does not prevent deadlocks but ensures mutual exclusion

191. What is a semaphore?

a) is a binary mutex
b) must be accessed from only one process
c) can be accessed from multiple processes
d) none of the mentioned

192. What are the two kinds of semaphores?

a) mutex & counting

b) binary & counting

c) counting & decimal

d) decimal & binary

193. What is a mutex?

a) is a binary mutex

b) must be accessed from only one process

c) can be accessed from multiple processes

d) none of the mentioned

194. At a particular time of computation the value of a counting semaphore is 7.Then 20 P operations and 15 V operations were completed on this semaphore. The resulting value of the semaphore is?

a) 42

b) 2

c) 7

d) 12

195. A binary semaphore is a semaphore with integer values _____

a) 1

b) -1

c) 0.8

d) 0.5

196. The following pair of processes share a common variable X.

```
Process A
int Y;
A1: Y = X*2;
A2: X = Y;

Process B
int Z;
B1: Z = X+1;
B2: X = Z;
```

X is set to 5 before either process begins execution. As usual, statements within a process are executed sequentially, but statements in process A may execute in any order with respect to statements in process B.

How many different values of X are possible after both processes finish executing?

a) two

b) three

c) four

d) eight

197. The program follows to use a shared binary semaphore T.

```
Process A
int Y;
A1: Y = X*2;
A2: X = Y;
signal(T);

Process B
int Z;
B1: wait(T);
B2: Z = X+1;
X = Z;
```

T is set to 0 before either process begins execution and, as before, X is set to 5. Now, how many different values of X are possible after both processes finish executing?

a) one

b) two

c) three

d) four

198. Semaphores are mostly used to implement _____

a) System calls

b) IPC mechanisms

c) System protection

d) None of the mentioned

199. The bounded buffer problem is also known as _____

a) Readers – Writers problem

b) Dining – Philosophers problem

c) Producer – Consumer problem

d) None of the mentioned

200. In the bounded buffer problem, there are the empty and full semaphores that _____

a) count the number of empty and full buffers

b) count the number of empty and full memory spaces

c) count the number of empty and full queues

d) none of the mentioned

201. In the bounded buffer problem _____

a) there is only one buffer

b) there are n buffers (n being greater than one but finite)

c) there are infinite buffers

d) the buffer size is bounded

202. To ensure difficulties do not arise in the readers – writers problem _____ are given exclusive access to the shared object.

a) readers

b) writers

c) readers and writers

d) none of the mentioned

203. The dining – philosophers problem will occur in case of _____

a) 5 philosophers and 5 chopsticks

b) 4 philosophers and 5 chopsticks

c) 3 philosophers and 5 chopsticks

d) 6 philosophers and 5 chopsticks

204. A deadlock free solution to the dining philosophers problem _____

a) necessarily eliminates the possibility of starvation

b) does not necessarily eliminate the possibility of starvation

c) eliminates any possibility of any kind of problem further

d) none of the mentioned

205. All processes share a semaphore variable mutex**, initialized to 1. Each process must execute wait(mutex) before entering the critical section and signal(mutex) afterward.**
Suppose a process executes in the following manner.

```
signal(mutex);
.....
critical section
.....
wait(mutex);
```

In this situation :

a) a deadlock will occur

b) processes will starve to enter critical section

c) several processes maybe executing in their critical section

d) all of the mentioned

206. All processes share a semaphore variable mutex**, initialized to 1. Each process must execute wait(mutex) before entering the critical section and signal(mutex) afterward.**
Suppose a process executes in the following manner.

```
wait(mutex);
.....
critical section
.....
wait(mutex);
```

a) a deadlock will occur

b) processes will starve to enter critical section

c) several processes maybe executing in their critical section

d) all of the mentioned

207. Consider the methods used by processes P1 and P2 for accessing their critical sections whenever needed, as given below. The initial values of shared boolean variables S1 and S2 are randomly assigned.

```
Method used by P1 :
while(S1==S2);
Critical section
S1 = S2;

Method used by P2 :
while(S1!=S2);
Critical section
S2 = not(S1);
```

Which of the following statements describes properties achieved?

a) Mutual exclusion but not progress

b) Progress but not mutual exclusion

c) Neither mutual exclusion nor progress

d) Both mutual exclusion and progress

208. What is a reusable resource?

a) that can be used by one process at a time and is not depleted by that use

b) that can be used by more than one process at a time

c) that can be shared between various threads

d) none of the mentioned

209. Which of the following condition is required for a deadlock to be possible?

a) mutual exclusion

b) a process may hold allocated resources while awaiting assignment of other resources

c) no resource can be forcibly removed from a process holding it

d) all of the mentioned

210. A system is in the safe state if _____

a) the system can allocate resources to each process in some order and still avoid a deadlock

b) there exist a safe sequence

c) all of the mentioned

d) none of the mentioned

211. The circular wait condition can be prevented by _____

a) defining a linear ordering of resource types

b) using thread

c) using pipes

d) all of the mentioned

212. Which one of the following is the deadlock avoidance algorithm?

a) banker's algorithm

b) round-robin algorithm

c) elevator algorithm

d) karn's algorithm

213. What is the drawback of banker's algorithm?

a) in advance processes rarely know how much resource they will need

b) the number of processes changes as time progresses

c) resource once available can disappear

d) all of the mentioned

214. For an effective operating system, when to check for deadlock?

a) every time a resource request is made

b) at fixed time intervals

c) every time a resource request is made at fixed time intervals

d) none of the mentioned

215. A problem encountered in multitasking when a process is perpetually denied necessary resources is called _____

a) deadlock

b) starvation

c) inversion

d) aging

216. Which one of the following is a visual (mathematical) way to determine the deadlock occurrence?

a) resource allocation graph

b) starvation graph

c) inversion graph

d) none of the mentioned

217. To avoid deadlock _____

a) there must be a fixed number of resources to allocate

b) resource allocation must be done only once

c) all deadlocked processes must be aborted

d) inversion technique can be used

218. The number of resources requested by a process _____

a) must always be less than the total number of resources available in the system

b) must always be equal to the total number of resources available in the system

c) must not exceed the total number of resources available in the system

d) must exceed the total number of resources available in the system

219. The request and release of resources are _____

a) command line statements
b) interrupts
c) system calls
d) special programs

220. What are Multithreaded programs?

a) lesser prone to deadlocks
b) more prone to deadlocks
c) not at all prone to deadlocks
d) none of the mentioned

221. For a deadlock to arise, which of the following conditions must hold simultaneously?

a) Mutual exclusion
b) No pre-emption
c) Hold and wait
d) All of the mentioned

222. For Mutual exclusion to prevail in the system _____

a) at least one resource must be held in a non sharable mode
b) the processor must be a uniprocessor rather than a multiprocessor
c) there must be at least one resource in a sharable mode
d) all of the mentioned

223. For a Hold and wait condition to prevail _____

a) A process must be not be holding a resource, but waiting for one to be freed, and then request to acquire it
b) A process must be holding at least one resource and waiting to acquire additional resources that are being held by other processes
c) A process must hold at least one resource and not be waiting to acquire additional resources
d) None of the mentioned

224. Deadlock prevention is a set of methods _____

a) to ensure that at least one of the necessary conditions cannot hold
b) to ensure that all of the necessary conditions do not hold
c) to decide if the requested resources for a process have to be given or not
d) to recover from a deadlock

225. For non sharable resources like a printer, mutual exclusion _____

a) must exist

b) must not exist

c) may exist

d) none of the mentioned

226. For sharable resources, mutual exclusion _____

a) is required

b) is not required

c) may be or may not be required

d) none of the mentioned

227. 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 the mentioned

228. The disadvantage of a process being allocated all its resources before beginning its execution is _____

a) Low CPU utilization

b) Low resource utilization

c) Very high resource utilization

d) None of the mentioned

229. To ensure no preemption, if a process is holding some resources and requests another resource that cannot be immediately allocated to it _____

a) then the process waits for the resources be allocated to it

b) the process keeps sending requests until the resource is allocated to it

c) the process resumes execution without the resource being allocated to it

d) then all resources currently being held are pre-empted

230. One way to ensure that the circular wait condition never holds is to _____

a) impose a total ordering of all resource types and to determine whether one precedes another in the ordering

b) to never let a process acquire resources that are held by other processes

c) to let a process wait for only one resource at a time

d) all of the mentioned

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

a) program counter

b) status register

c) instruction register

d) program status word

232. A memory buffer used to accommodate a speed differential is called _____

a) stack pointer

b) cache

c) accumulator

d) disk buffer

233. 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

234. Run time mapping from virtual to physical address is done by _____

a) Memory management unit

b) CPU

c) PCI

d) None of the mentioned

235. 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) mapping

d) none of the mentioned

236. The address of a page table in memory is pointed by _____

a) stack pointer

b) page table base register

c) page register

d) program counter

237. Program always deals with _____

a) logical address

b) absolute address

c) physical address

d) relative address

238. The page table contains _____

a) base address of each page in physical memory

b) page offset

c) page size

d) none of the mentioned

239. What is compaction?

a) a technique for overcoming internal fragmentation

b) a paging technique

c) a technique for overcoming external fragmentation

d) a technique for overcoming fatal error

240. Operating System maintains the page table for _____

a) each process

b) each thread

c) each instruction

d) each address

241. The main memory accommodates _____

a) operating system

b) cpu

c) user processes

d) all of the mentioned

242. What is the operating system?

a) in the low memory

b) in the high memory

c) either low or high memory (depending on the location of interrupt vector)

d) none of the mentioned

243. 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 the mentioned

244. The relocation register helps in _____

a) providing more address space to processes

b) a different address space to processes

c) to protect the address spaces of processes

d) none of the mentioned

245. With relocation and limit registers, each logical address must be _____ the limit register.

a) less than

b) equal to

c) greater than

d) none of the mentioned

246. The operating system and the other processes are protected from being modified by an already running process because _____

a) they are in different memory spaces

b) they are in different logical addresses

c) they have a protection algorithm

d) every address generated by the CPU is being checked against the relocation and limit registers

247. Transient operating system code is code that _____

a) is not easily accessible

b) comes and goes as needed

c) stays in the memory always

d) never enters the memory space

248. Using transient code, _____ the size of the operating system during program execution.

a) increases

b) decreases

c) changes

d) maintains

249. When memory is divided into several fixed sized partitions, each partition may contain _____

a) exactly one process

b) at least one process

c) multiple processes at once

d) none of the mentioned

250. In fixed size partition, the degree of multiprogramming is bounded by _____

a) the number of partitions

b) the CPU utilization

c) the memory size

d) all of the mentioned

251. The first fit, best fit and worst fit are strategies to select a _____

a) process from a queue to put in memory
b) processor to run the next process
c) free hole from a set of available holes
d) all of the mentioned

252. 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 the mentioned

253. A solution to the problem of external fragmentation is _____

a) compaction
b) larger memory space
c) smaller memory space
d) none of the mentioned

254. Another 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 the mentioned

255. If relocation is static and is done at assembly or load time, compaction _____

a) cannot be done
b) must be done
c) must not be done
d) can be done

256. 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 the mentioned

257. _____ 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 the mentioned

258. 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 the mentioned

259. External fragmentation will not occur when?

a) first fit is used

b) best fit is used

c) worst fit is used

d) no matter which algorithm is used, it will always occur

260. Sometimes the overhead of keeping track of a hole might be _____

a) larger than the memory

b) larger than the hole itself

c) very small

d) all of the mentioned

261. When the memory allocated to a process is slightly larger than the process, then _____

a) internal fragmentation occurs

b) external fragmentation occurs

c) both internal and external fragmentation occurs

d) neither internal nor external fragmentation occurs

262. Physical memory is broken into fixed-sized blocks called _____

a) frames

b) pages

c) backing store

d) none of the mentioned

263. Logical memory is broken into blocks of the same size called _____

a) frames

b) pages

c) backing store

d) none of the mentioned

264. Every address generated by the CPU is divided into two parts. They are _____

a) frame bit & page number

b) page number & page offset

c) page offset & frame bit

d) frame offset & page offset

265. The _____ is used as an index into the page table.

a) frame bit

b) page number

c) page offset

d) frame offset

266. The ____ table contains the base address of each page in physical memory.

a) process

b) memory

c) page

d) frame

267. The size of a page is typically _____

a) varied

b) power of 2

c) power of 4

d) none of the mentioned

268. With paging there is no _____ fragmentation.

a) internal

b) external

c) either type of

d) none of the mentioned

269. The operating system maintains a _____ table that keeps track of how many frames have been allocated, how many are there, and how many are available.

a) page

b) mapping

c) frame

d) memory

270. Paging increases the _____ time.

a) waiting

b) execution

c) context – switch

d) all of the mentioned

271. Smaller page tables are implemented as a set of _____

a) queues

b) stacks

c) counters

d) registers

272. The page table registers should be built with _____

a) very low speed logic

b) very high speed logic

c) a large memory space

d) none of the mentioned

273. For larger page tables, they are kept in main memory and a _____ points to the page table.

a) page table base register

b) page table base pointer

c) page table register pointer

d) page table base

274. For every process there is a _____

a) page table

b) copy of page table

c) pointer to page table

d) all of the mentioned

275. Time taken in memory access through PTBR is _____

a) extended by a factor of 3

b) extended by a factor of 2

c) slowed by a factor of 3

d) slowed by a factor of 2

276. Each entry in a translation lookaside buffer (TLB) consists of _____

a) key

b) value

c) bit value

d) constant

277. If a page number is not found in the TLB, then it is known as a _____

a) TLB miss

b) Buffer miss

c) TLB hit

d) All of the mentioned

278. An _____ uniquely identifies processes and is used to provide address space protection for that process.

a) address space locator

b) address space identifier

c) address process identifier

d) none of the mentioned

279. The percentage of times a page number is found in the TLB is known as _____

a) miss ratio
b) hit ratio
c) miss percent
d) none of the mentioned

280. Memory protection in a paged environment is accomplished by _____

a) protection algorithm with each page
b) restricted access rights to users
c) restriction on page visibility
d) protection bit with each page

281. When the valid – invalid bit is set to valid, it means that the associated page _____

a) is in the TLB
b) has data in it
c) is in the process's logical address space
d) is the system's physical address space

282. Illegal addresses are trapped using the ____ bit.

a) error
b) protection
c) valid – invalid
d) access

283. When there is a large logical address space, the best way of paging would be _____

a) not to page
b) a two level paging algorithm
c) the page table itself
d) all of the mentioned

284. In a paged memory, the page hit ratio is 0.35. The required to access a page in secondary memory is equal to 100 ns. The time required to access a page in primary memory is 10 ns. The average time required to access a page is?

a) 3.0 ns
b) 68.0 ns
c) 68.5 ns
d) 78.5 ns

285. To obtain better memory utilization, dynamic loading is used. With dynamic loading, a routine is not loaded until it is called. For implementing dynamic loading _____

a) special support from hardware is required
b) special support from operating system is essential
c) special support from both hardware and operating system is essential
d) user programs can implement dynamic loading without any special support from hardware or operating system

286. In paged memory systems, if the page size is increased, then the internal fragmentation generally _____

a) becomes less
b) becomes more
c) remains constant
d) none of the mentioned

287. In segmentation, each address is specified by _____

a) a segment number & offset
b) an offset & value
c) a value & segment number
d) a key & value

288. In paging the user provides only _____ which is partitioned by the hardware into _____ and _____

a) one address, page number, offset
b) one offset, page number, address
c) page number, offset, address
d) none of the mentioned

289. Each entry in a segment table has a _____

a) segment base
b) segment peak
c) segment value
d) none of the mentioned

290. The segment base contains the _____

a) starting logical address of the process
b) starting physical address of the segment in memory
c) segment length
d) none of the mentioned

291. The offset ‘d’ of the logical address must be _____

a) greater than segment limit

b) between 0 and segment limit

c) between 0 and the segment number

d) greater than the segment number

292. If the offset is legal _____

a) it is used as a physical memory address itself

b) it is subtracted from the segment base to produce the physical memory address

c) it is added to the segment base to produce the physical memory address

d) none of the mentioned

293. When the entries in the segment tables of two different processes point to the same physical location _____

a) the segments are invalid

b) the processes get blocked

c) segments are shared

d) all of the mentioned

294. The protection bit is 0/1 based on _____

a) write only

b) read only

c) read – write

d) none of the mentioned

295. If there are 32 segments, each of size 1Kb, then the logical address should have _____

a) 13 bits

b) 14 bits

c) 15 bits

d) 16 bits

296. Consider a computer with 8 Mbytes of main memory and a 128K cache. The cache block size is 4 K. It uses a direct mapping scheme for cache management. How many different main memory blocks can map onto a given physical cache block?

a) 2048

b) 256

c) 64

d) 8

297. A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because _____

a) it reduces the memory access time to read or write a memory location

b) it helps to reduce the size of page table needed to implement the virtual address space of a process

c) it is required by the translation lookaside buffer

d) it helps to reduce the number of page faults in page replacement algorithms

298. Linux uses a time-sharing algorithm _____

a) to pair preemptive scheduling between multiple processes

b) for tasks where absolute priorities are more important than fairness

c) all of the mentioned

d) none of the mentioned

299. The first linux kernel which supports the SMP hardware?

a) linux 0.1

b) linux 1.0

c) linux 1.2

d) linux 2.0

300. Which one of the following linux file system does not support journaling feature?

a) ext2

b) ext3

c) ext4

d) none of the mentioned

301. Which binary format is supported by linux?

a) a.out

b) elf

c) both a.out and ELF

d) none of the mentioned

302. The first process launched by the linux kernel is _____

a) init process

b) zombie process

c) batch process

d) boot process

303. Which desktop environment is not used in any linux distribution?

a) gnome

b) kde

c) unity

d) none of the mentioned

304. Standard set of functions through which interacts with kernel is defined by _____

a) system libraries
b) kernel code
c) compilers
d) utility programs

305. What is Linux?

a) single user, single tasking
b) single user, multitasking
c) multi user, single tasking
d) multi user, multitasking

306. Which one of the following is not a linux distribution?

a) debian
b) gentoo
c) open SUSE
d) multics

307. Which one of the following is not shared by threads?

a) program counter
b) stack
c) both program counter and stack
d) none of the mentioned

308. A process can be _____

a) single threaded
b) multithreaded
c) both single threaded and multithreaded
d) none of the mentioned

309. If one thread opens a file with read privileges then _____

a) other threads in the another process can also read from that file
b) other threads in the same process can also read from that file
c) any other thread can not read from that file
d) all of the mentioned

310. The time required to create a new thread in an existing process is _____

a) greater than the time required to create a new process
b) less than the time required to create a new process
c) equal to the time required to create a new process
d) none of the mentioned

311. 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

312. The jacketing technique is used to _____

a) convert a blocking system call into non blocking system call

b) create a new thread

c) communicate between threads

d) terminate a thread

313. Termination of the process terminates _____

a) first thread of the process

b) first two threads of the process

c) all threads within the process

d) no thread within the process

314. Which one of the following is not a valid state of a thread?

a) running

b) parsing

c) ready

d) blocked

315. The register context and stacks of a thread are deallocated when the thread?

a) terminates

b) blocks

c) unblocks

d) spawns

316. 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

317. A thread is also called _____

a) Light Weight Process(LWP)

b) Heavy Weight Process(HWP)

c) Process

d) None of the mentioned

318. A thread shares its resources(like data section, code section, open files, signals) with _____

a) other process similar to the one that the thread belongs to
b) other threads that belong to similar processes
c) other threads that belong to the same process
d) all of the mentioned

319. A heavy weight process _____

a) has multiple threads of execution
b) has a single thread of execution
c) can have multiple or a single thread for execution
d) none of the mentioned

320. A process having multiple threads of control implies _____

a) it can do more than one task at a time
b) it can do only one task at a time, but much faster
c) it has to use only one thread per process
d) none of the mentioned

321. Multithreading an interactive program will increase responsiveness to the user by _____

a) continuing to run even if a part of it is blocked
b) waiting for one part to finish before the other begins
c) asking the user to decide the order of multithreading
d) none of the mentioned

322. Resource sharing helps _____

a) share the memory and resources of the process to which the threads belong
b) an application have several different threads of activity all within the same address space
c) reduce the address space that a process could potentially use
d) all of the mentioned

323. Multithreading on a multi – CPU machine _____

a) decreases concurrency
b) increases concurrency
c) doesn't affect the concurrency
d) can increase or decrease the concurrency

324. The kernel is _____ of user threads.

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

325. If the kernel is single threaded, then any user level thread performing a blocking system call will _____

a) cause the entire process to run along with the other threads
b) cause the thread to block with the other threads running
c) cause the entire process to block even if the other threads are available to run
d) none of the mentioned

326. Because the kernel thread management is done by the Operating System itself _____

a) kernel threads are faster to create than user threads
b) kernel threads are slower to create than user threads
c) kernel threads are easier to manage as well as create then user threads
d) none of the mentioned

327. If a kernel thread performs a blocking system call, _____

a) the kernel can schedule another thread in the application for execution
b) the kernel cannot schedule another thread in the same application for execution
c) the kernel must schedule another thread of a different application for execution
d) the kernel must schedule another thread of the same application on a different processor

328. Which of the following is FALSE?

a) Context switch time is longer for kernel level threads than for user level threads
b) User level threads do not need any hardware support
c) Related kernel level threads can be scheduled on different processors in a multiprocessor system
d) Blocking one kernel level thread blocks all other related threads

329. Which of the following system calls does not return control to the calling point, on termination?

a) fork
b) exec
c) ioctl
d) longjmp

330. The following program results in the creation of?

```
main()
{
   if(fork()>0)
   sleep(100);
}
```

a) an orphan process
b) a zombie process
c) a process that executes forever
d) none of the mentioned

331. Which of the following system calls transforms executable binary file into a process?

a) fork

b) exec

c) ioctl

d) longjmp

332. Which of the following calls never returns an error?

a) getpid

b) fork

c) ioctl

d) open

333. A fork system call will fail if _____

a) the previously executed statement is also a fork call

b) the limit on the maximum number of processes in the system would be executed

c) the limit on the minimum number of processes that can be under execution by a single user would be executed

d) all of the mentioned

334. If a thread invokes the exec system call _____

a) only the exec executes as a separate process

b) the program specified in the parameter to exec will replace the entire process

c) the exec is ignored as it is invoked by a thread

d) none of the mentioned

335. If exec is called immediately after forking _____

a) the program specified in the parameter to exec will replace the entire process

b) all the threads will be duplicated

c) all the threads may be duplicated

d) none of the mentioned

336. If a process does not call exec after forking _____

a) the program specified in the parameter to exec will replace the entire process

b) all the threads should be duplicated

c) all the threads should not be duplicated

d) none of the mentioned

337. Signals that occur at the same time, are presented to the process _____

a) one at a time, in a particular order

b) one at a time, in no particular order

c) all at a time

d) none of the mentioned

338. Which of the following is not TRUE?

a) Processes may send each other signals
b) Kernel may send signals internally
c) A field is updated in the signal table when the signal is sent
d) Each signal is maintained by a single bit

339. Signals of a given type _____

a) are queued
b) are all sent as one
c) cannot be queued
d) none of the mentioned

340. The three ways in which a process responds to a signal are _____

a) ignoring the signal
b) handling the signal
c) performing some default action
d) all of the mentioned

341. Signals are identified by _____

a) signal identifiers
b) signal handlers
c) signal actions
d) none of the mentioned

342. When a process blocks the receipt of certain signals?

a) The signals are delivered
b) The signals are not delivered
c) The signals are received until they are unblocked
d) The signals are received by the process once they are delivered

343. The _____ maintains pending and blocked bit vectors in the context of each process.

a) CPU
b) Memory
c) Process
d) Kernel

344. In UNIX, the set of masked signals can be set or cleared using the _____ function.

a) sigmask
b) sigmaskproc
c) sigprocmask
d) sigproc

345. The usefulness of signals as a general inter process communication mechanism is limited because _____

a) they do not work between processes
b) they are user generated
c) they cannot carry information directly
d) none of the mentioned

346. The usual effect of abnormal termination of a program is _____

a) core dump file generation
b) system crash
c) program switch
d) signal destruction

347. In UNIX, the abort() function sends the _____ signal to the calling process, causing abnormal termination.

a) SIGTERM
b) SIGSTOP
c) SIGABORT
d) SIGABRT

348. In most cases, if a process is sent a signal while it is executing a system call _____

a) the system call will continue execution and the signal will be ignored completely
b) the system call is interrupted by the signal, and the signal handler comes in
c) the signal has no effect until the system call completes
d) none of the mentioned

349. A process can never be sure that a signal it has sent _____

a) has which identifier
b) has not been lost
c) has been sent
d) all of the mentioned

350. In UNIX, the _____ system call is used to send a signal.

a) sig
b) send
c) kill
d) sigsend

351. Because of virtual memory, the memory can be shared among _____

a) processes
b) threads
c) instructions
d) none of the mentioned

352. _____ is the concept in which a process is copied into the main memory from the secondary memory according to the requirement.

a) Paging

b) Demand paging

c) Segmentation

d) Swapping

353. The pager concerns with the _____

a) individual page of a process

b) entire process

c) entire thread

d) first page of a process

354. Swap space exists in _____

a) primary memory

b) secondary memory

c) cpu

d) none of the mentioned

355. 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

356. Effective access time is directly proportional to _____

a) page-fault rate

b) hit ratio

c) memory access time

d) none of the mentioned

357. In FIFO page replacement algorithm, when a page must be replaced _____

a) oldest page is chosen

b) newest page is chosen

c) random page is chosen

d) none of the mentioned

358. Which algorithm chooses the page that has not been used for the longest period of time whenever the page required to be replaced?

a) first in first out algorithm

b) additional reference bit algorithm

c) least recently used algorithm

d) counting based page replacement algorithm

359. A process is thrashing if _____

a) it is spending more time paging than executing

b) it is spending less time paging than executing

c) page fault occurs

d) swapping can not take place

360. Working set model for page replacement is based on the assumption of _____

a) modularity

b) locality

c) globalization

d) random access

361. Virtual memory allows _____

a) execution of a process that may not be completely in memory

b) a program to be smaller than the physical memory

c) a program to be larger than the secondary storage

d) execution of a process without being in physical memory

362. The instruction being executed, must be in _____

a) physical memory

b) logical memory

c) physical & logical memory

d) none of the mentioned

363. Error handler codes, to handle unusual **errors are _____**

a) almost never executed

b) executed very often

c) executed periodically

d) none of the mentioned

364. The ability to execute a program that is only partially in memory has benefits like _____

a) The amount of physical memory cannot put a constraint on the program

b) Programs for an extremely large virtual space can be created

c) Throughput increases

d) All of the mentioned

365. In virtual memory. the programmer _____ of overlays.

a) has to take care

b) does not have to take care

c) all of the mentioned

d) none of the mentioned

366. Virtual memory is normally implemented by _____

a) demand paging

b) buses

c) virtualization

d) all of the mentioned

367. Segment replacement algorithms are more complex than page replacement algorithms because _____

a) Segments are better than pages

b) Pages are better than segments

c) Segments have variable sizes

d) Segments have fixed sizes

368. A swapper manipulates _____ whereas the pager is concerned with individual _____ of a process.

a) the entire process, parts

b) all the pages of a process, segments

c) the entire process, pages

d) none of the mentioned

369. Using a pager _____

a) increases the swap time

b) decreases the swap time

c) decreases the swap time & amount of physical memory needed

d) increases the amount of physical memory needed

370. The valid – invalid bit, in this case, when valid indicates?

a) the page is not legal

b) the page is illegal

c) the page is in memory

d) the page is not in memory

371. A page fault occurs when?

a) a page gives inconsistent data

b) a page cannot be accessed due to its absence from memory

c) a page is invisible

d) all of the mentioned

372. When a page fault occurs, the state of the interrupted process is _____

a) disrupted

b) invalid

c) saved

d) none of the mentioned

373. When a process begins execution with no pages in memory?

a) process execution becomes impossible

b) a page fault occurs for every page brought into memory

c) process causes system crash

d) none of the mentioned

374. If the memory access time is denoted by 'ma' and 'p' is the probability of a page fault (0 <= p <= 1). Then the effective access time for a demand paged memory is _____

a) p x ma + (1-p) x page fault time

b) ma + page fault time

c) (1-p) x ma + p x page fault time

d) none of the mentioned

375. When the page fault rate is low _____

a) the turnaround time increases

b) the effective access time increases

c) the effective access time decreases

d) turnaround time & effective access time increases

376. Locality of reference implies that the page reference being made by a process _____

a) will always be to the page used in the previous page reference

b) is likely to be one of the pages used in the last few page references

c) will always be one of the pages existing in memory

d) will always lead to page faults

377. _____ is a unique tag, usually a number identifies the file within the file system.

a) File identifier

b) File name

c) File type

d) None of the mentioned

378. To create a file _____

a) allocate the space in file system

b) make an entry for new file in directory

c) allocate the space in file system & make an entry for new file in directory

d) none of the mentioned

379. By using the specific system call, we can _____

a) open the file

b) read the file

c) write into the file

d) all of the mentioned

380. File type can be represented by _____

a) file name

b) file extension

c) file identifier

d) none of the mentioned

381. Which file is a sequence of bytes organized into blocks understandable by the system's linker?

a) object file

b) source file

c) executable file

d) text file

382. What is the mounting of file system?

a) crating of a filesystem

b) deleting a filesystem

c) attaching portion of the file system into a directory structure

d) removing the portion of the file system into a directory structure

383. Mapping of file is managed by _____

a) file metadata

b) page table

c) virtual memory

d) file system

384. Mapping of network file system protocol to local file system is done by _____

a) network file system

b) local file system

c) volume manager

d) remote mirror

385. Which one of the following explains the sequential file access method?

a) random access according to the given byte number

b) read bytes one at a time, in order

c) read/write sequentially by record

d) read/write randomly by record

386. When will file system fragmentation occur?

a) unused space or single file are not contiguous

b) used space is not contiguous

c) unused space is non-contiguous

d) multiple files are non-contiguous

387. In _____ information is recorded magnetically on platters.

a) magnetic disks

b) electrical disks

c) assemblies

d) cylinders

388. The heads of the magnetic disk are attached to a ____ that moves all the heads as a unit.

a) spindle

b) disk arm

c) track

d) none of the mentioned

389. The set of tracks that are at one arm position make up a _____

a) magnetic disks

b) electrical disks

c) assemblies

d) cylinders

390. The time taken to move the disk arm to the desired cylinder is called the _____

a) positioning time

b) random access time

c) seek time

d) rotational latency

391. The time taken for the desired sector to rotate to the disk head is called _____

a) positioning time

b) random access time

c) seek time

d) rotational latency

392. When the head damages the magnetic surface, it is known as _____

a) disk crash

b) head crash

c) magnetic damage

d) all of the mentioned

393. A floppy disk is designed to rotate _____ as compared to a hard disk drive.

a) faster

b) slower

c) at the same speed

d) none of the mentioned

394. What is the host controller?

a) controller built at the end of each disk

b) controller at the computer end of the bus

c) all of the mentioned

d) none of the mentioned

395. _____ controller sends the command placed into it, via messages to the _____ controller.

a) host, host

b) disk, disk

c) host, disk

d) disk, host

396. What is the disk bandwidth?

a) the total number of bytes transferred

b) total time between the first request for service and the completion on the last transfer

c) the total number of bytes transferred divided by the total time between the first request for service and the completion on the last transfer

d) none of the mentioned

397. Whenever a process needs I/O to or from a disk it issues a _____

a) system call to the CPU

b) system call to the operating system

c) a special procedure

d) all of the mentioned

398. If a process needs I/O to or from a disk, and if the drive or controller is busy then _____

a) the request will be placed in the queue of pending requests for that drive

b) the request will not be processed and will be ignored completely

c) the request will be not be placed

d) none of the mentioned

399. Consider a disk queue with requests for I/O to blocks on cylinders.
98 183 37 122 14 124 65 67
Considering FCFS (first cum first served) scheduling, the total number of head movements is, if the disk head is initially at 53 is?

a) 600

b) 620

c) 630

d) 640

400. Consider a disk queue with requests for I/O to blocks on cylinders.
98 183 37 122 14 124 65 67
Considering SSTF (shortest seek time first) scheduling, the total number of head movements is, if the disk head is initially at 53 is?
a) 224
b) 236
c) 245
d) 240

401. Random access in magnetic tapes is _____ compared to magnetic disks.
a) fast
b) very fast
c) slow
d) very slow

402. Magnetic tape drives can write data at a speed _____ disk drives.
a) much lesser than
b) comparable to
c) much faster than
d) none of the mentioned

403. On media that use constant linear velocity (CLV), the _____ is uniform.
a) density of bits on the disk
b) density of bits per sector
c) the density of bits per track
d) none of the mentioned

404. SSTF algorithm, like SJF _____ of some requests.
a) may cause starvation
b) will cause starvation
c) does not cause starvation
d) causes aging

405. In the _____ algorithm, the disk arm starts at one end of the disk and moves toward the other end, servicing requests till the other end of the disk. At the other end, the direction is reversed and servicing continues.
a) LOOK
b) SCAN
c) C-SCAN
d) C-LOOK

406. In the _____ algorithm, the disk head moves from one end to the other, servicing requests along the way. When the head reaches the other end, it immediately returns to the beginning of the disk without servicing any requests on the return trip.

a) LOOK
b) SCAN
c) C-SCAN
d) C-LOOK

407. In the _____ algorithm, the disk arm goes as far as the final request in each direction, then reverses direction immediately without going to the end of the disk.

a) LOOK
b) SCAN
c) C-SCAN
d) C-LOOK

408. The process of dividing a disk into sectors that the disk controller can read and write, before a disk can store data is known as _____

a) partitioning
b) swap space creation
c) low-level formatting
d) none of the mentioned

409. The data structure for a sector typically contains _____

a) header
b) data area
c) trailer
d) all of the mentioned

410. The header and trailer of a sector contain information used by the disk controller such as _____ and _____

a) main section & disk identifier
b) error correcting codes (ECC) & sector number
c) sector number & main section
d) disk identifier & sector number

411. The two steps the operating system takes to use a disk to hold its files are _____ and _____

a) partitioning & logical formatting
b) swap space creation & caching
c) caching & logical formatting
d) logical formatting & swap space creation

412. The _____ program initializes all aspects of the system, from CPU registers to device controllers and the contents of main memory, and then starts the operating system.

a) main
b) bootloader
c) bootstrap
d) rom

413. For most computers, the bootstrap is stored in _____

a) RAM
b) ROM
c) Cache
d) Tertiary storage

414. A disk that has a boot partition is called a _____

a) start disk
b) end disk
c) boot disk
d) all of the mentioned

415. Defective sectors on disks are often known as _____

a) good blocks
b) destroyed blocks
c) bad blocks
d) none of the mentioned

416. In SCSI disks used in high end PCs, the controller maintains a list of _____ on the disk. The disk is initialized during _____ formatting which sets aside spare sectors not visible to the operating system.

a) destroyed blocks, high level formatting
b) bad blocks, partitioning
c) bad blocks, low level formatting
d) destroyed blocks, partitioning

417. An unrecoverable error is known as _____

a) hard error
b) tough error
c) soft error
d) none of the mentioned

418. By default if any regular file is created, the number of link is displayed as 1 ?

a) True
b) False

419. How many links are created when we creat a directory file?

a) 1

b) 2

c) 3

d) 4

420. A user creates a link to a file file1 using the following command “ln file1 file2”. Which of the following is not true?

a) file1 and file2 have the same inode numbers

b) The number of links for file1 is displayed as 1

c) The number of links for file1 is displayed as 2

d) The number of links for file2 is displayed as 2

421. There are two hard links to the “file1” say hl and h2 and a softlink sl. What happens if we deleted the “file1”?

a) We will still be able to access the file with hl and h2 but not with sl

b) We will not be able to access the file with hl and h2 but with sl

c) We will be able to access the file with any of hl, h2 and sl

d) We will not be able to access the file with any of hl, h2 and sl

422. If two files on same partition point to the same inode structure they are called

a) Soft links

b) Hard links

c) Alias

d) Special files

423. Deleting a soft-link

a) Deletes the destination file

b) Deletes both the softlink and the destination file

c) Deletes just the softlink

d) backup of the destination is automatically created

424. Creation of hardlinks that point across partitions

a) is allowed only to root user

b) can be done by all users

c) the effects are unspecified

d) is not allowed

425. Which command is used to change permissions of files and directories?

a) mv

b) chgrp

c) chmod

d) set

426. Where can I find the printer in the file structure?

a) /etc
b) /dev
c) /lib
d) /printer

427. Which of the following statement is true?

a) The cp command will preserve the meta data of the file
b) The sort command by default sorts in the numeric order
c) The mv command will preserve the meta data of the file
d) The command ps will display the filesystem usage

428. What UNIX command is used to update the modification time of a file?

a) time
b) modify
c) cat
d) touch

429. Which of the following time stamps need not exist for a file on traditional unix file system

a) Access Time
b) Modification Time
c) Creation Time
d) Change Time

430. Which command is used to set limits on file size

a) fsize
b) flimit
c) ulimit
d) usize

431. Which option of rmdir command will remove all directories a, b, c if path is a/b/c

a) –b
b) –o
c) –p
d) –t

432. Which represents the user home directory

a) /
b) .
c) ..
d) ~

433. If a file is removed in Unix using 'rm' then

a) The file can be recovered by a normal user

b) The file cannot be recovered by a user

c) The file can be fully recovered provided the sytem is not rebooted

d) The file will be moved to /lost+found directory and can be recovered only by administrator's intervention

434. Executing the 'cd ..' command when at the root level causes

a) Error message indicating the user can't access beyond the root level

b) Behavior is unix-flavor dependent

c) Results in changing to the 'home' directory

d) Nothing happens

435. How do you rename file "new" to file "old"?

a) mv new old

b) move new old

c) cp new old

d) rn new old

436. What command is used to copy files and directories?

a) copy

b) cp

c) rn

d) cpy

437. When mv f1 f2 is executed which file's inode is freed?

a) f1

b) f2

c) new inode will be used

d) no inode is freed

438. Any file's attribute information is stored in which structure on the disk

a) Inode

b) Data blocks

c) File blocks

d) Directory file

439. The soft link will increase the link counter of the file.(T/F)

a) True

b) False

440. When you use the ln command, which of the following occurs?

a) a file is created that points to an existing file

b) a file is created that is a copy of an existing file

c) a file is moved from one location to another

d) a file is renamed

441. srwxr-xrw- is a

a) internet socket file

b) unix domain socket file

c) symbolic link

d) shared file

442. Binary or executable files are:

a) Regular files

b) Device files

c) Special files

d) Directory files

443. The directory file contains:

a) File names & File Sizes

b) File names & Inode Numbers

c) File names & Address

d) File names & Permissions

444. Which directory contain device special files?

a) /etc

b) /etc/dev

c) /root/bin

d) /dev

445. Which of the following is not a valid file type on Linux

a) Socket

b) Softlink

c) Inode

d) FIFO

446. Which of the following is not correct statement regarding file types?

a) Hard links share same inode number

b) Soft links cannot be created across partitions

c) Socket files are Unix domain sockets

d) Character file is a special file

447. Which are the two types of device files?

a) Character & Block

b) Character & Socket

c) Block & FIFO

d) Input & output

448. Which is an example for character special file?

a) Hard disk

b) CD-ROM

c) Terminal

d) Memory

449. Which is an example for block special file?

a) Virtual Terminal

b) CD-ROM

c) Terminal

d) Serial modem

450. All device files are stored in which directory?

a) /etc

b) /bin

c) /dev

d) /usr

451. The file permission 764 means:

a) Every one can read, group can execute only and the owner can read and write

b) Every one can read and write, but owner alone can execute

c) Every one can read, group including owner can write, owner alone can execute

d) Every one can read and write and execute

452. The permission -rwxr--r-- represented in octal expression will be

a) 777

b) 666

c) 744

d) 711

453. Effective user id can be set using following permission

a) 0777

b) 2666

c) 4744

d) 1711

454. Effective group id can be set using following permission

a) 0777

b) 2666

c) 4744

d) 1711

455. Sticky bit can be set using following permission

a) 0777

b) 2666

c) 4744

d) 1711

456. The permission -rwSr–r– represented in octal expression will be

a) 0777

b) 2666

c) 4744

d) 4644

457. The permission -rwxr-sr– represented in octal expression will be

a) 0777

b) 2766

c) 2744

d) 2754

458. If user tries to remove (rm) a readonly file (444 permission), what will happen?

a) The file is removed successfully (and silently)

b) The rm command prompts for a confirmation, the command is successful upon confirmation

c) The rm command prompts for a confirmation, however the operation fails because of insufficient permissions

d) The rm command fails because of insufficient permissions

459. A user does a chmod operation on a file. Which of the following is true?

a) The last accessed time of the file is updated

b) The last modification time of the file is updated

c) The last change time of the file is updated

d) None of the mentioned

460. If the umask value is 0002. what will be the permissions of new directory

a) 777

b) 775

c) 774

d) 664

461. What is the command to set the execute permissions to all the files and subdirectories within the directory /home/user1/direct

a) chmod –r +x /home/user1/direct

b) chmod –R +x /home/user1/direct

c) chmod –f –r +x /home/user1/direct

d) chmod –F +x /home/user1/direct

462. The permission -rwxr-xr-t represented in octal expression will be

a) 0777

b) 1755

c) 1754

d) 2754

463. With a umask value of 112, what is the default permission assigned to newly created regular file?

a) —x–x-wx

b) -rw-rw-r–

c) -r-xr-x-r–

d) -rw-rw-r–

464. Which command is used to assign read-write permission to the owner?

a) chmod a+r file

b) chmod o+r file

c) chmod u=rw file

d) chmod og-r file

465. Given the command

$ chmod o-w datafile

a) sets write permission to everyone for datafile

b) sets write permission to others for datafile

c) clears write permission to everyone for datafile

d) clears write permission to others for datafile

466. Which of these commands will set the permissions on file textfile to read and write for the owner, read for the group, and nothing for everyone else?

a) chmod 046 textfile

b) chmod 640 textfile

c) chmod 310 textfile

d) chmod rw r nil textfile

467. If you are a root user, how can you grand execute permission only for the owner of the file project1?

a) chmod +x project1

b) chmod u+x project1

c) chmod a+x project1

d) chmod U+X project1

468. A user executes the following command successfully:

$ chmod +x file1.txt

Which of the following is true of the output of this command?

a) The command results in adding execute permission to the user who ran this command

b) The command results in adding execute permission for the owner of the file

c) The command results in an error since the file is not an executable file

d) The command results in adding execute permission for all users (i.e., user,group & others)

469. What does chmod +t do?

a) wrong syntax

b) set effective userid for filename

c) set effective groupid for filename

d) set the sticky bit

470. Which of the following umask settings doesn't allow execute permission to be set by default on directory files

a) 222

b) 111

c) 000

d) 444

471. Which of the following umask settings allow execute permission to be set by default on regular files

a) 222

b) 111

c) 000

d) None of the mentioned

472. The command chmod 4777 a.out

a) will set the suid bit of a.out

b) will set the suid bit of a.out only if the command is issued by root

c) is not a valid command

d) will set the sticky bit of a.out

473. Which command is used to check filesystem usage in a system?

a) mount
b) df
c) du
d) dd

474. Which among the following allows fast file system recovery?

a) Ext2
b) Journaling
c) Caching
d) Sysfs

475. Which filesystem can be used to change certain kernel parameters at runtime using sysctl command?

a) Ext3
b) Sysfs
c) Ext4
d) Procfs

476. Filesystem for CDROM is:

a) Ext2
b) Ext3
c) Isofs
d) Procfs

477. Which file system has journaling capability?

a) Ext2
b) Ext4
c) Isofs
d) Procfs

478. Which file contains the filesystems to be automatically mounted during boot?

a) /etc/mount
b) /etc/fstab
c) /etc/inittab
d) /etc/boot

479. ___ is a directory (which should exist), on which to mount the file system?

a) Root
b) Boot
c) Mount-point
d) Partition

480. Which command is used to mount file system read only.

a) mount –a
b) mount –v
c) mount –f
d) mount –r

481. Which of the following is not a valid run-level

a) S
b) 0
c) 8
d) 1

482. On Linux, initrd is a file

a) Containing root file-system required during bootup
b) Contains only scripts to be executed during bootup
c) Contains root-file system and drivers required to be preloaded during bootup
d) None of the mentioned

483. Which is loaded into memory when system is booted?

a) Kernel
b) Shell
c) Commands
d) Script

484. The process of starting up a computer is known as

a) Boot Loading
b) Boot Record
c) Boot Strapping
d) Booting

485. Bootstrapping is also known as

a) Quick boot
b) Cold boot
c) Hot boot
d) Fast boot

486. The shell used for Single user mode shell is:

a) bash
b) Csh
c) ksh
d) sh

487. Single user mode shell runs as

a) Admin user

b) Root user

c) Normal user

d) Log user

488. Which is the only partition mounted in Single user mode

a) boot

b) usr

c) root

d) tmp

489. Which daemon manages the physical memory by moving process from physical memory to swap space when more physical memory is needed.

a) Sched daemon

b) Swap daemon

c) Init daemon

d) Process daemon

490. At the end of kernel bootstrap, which process is started?

a) /etc/init

b) /etc/sched

c) /etc/swap

d) /etc/kernel

491. The process id of init process is:

a) -1

b) 0

c) 1

d) 2

492. Which file is read by init to get the default runlevel

a) /etc/profile

b) /etc/init

c) /etc/boot

d) /etc/inittab

493. If a program executing in background attempts to read from STDIN

a) It is terminated

b) It's execution is suspended

c) STDIN is made available to it

d) None of the mentioned

494. Which command is used to bring the background process to forground?

a) bg
b) fg
c) background
d) forground

495. How to run a process in the background?

a) &
b) *
c) ?
d) |

496. Which command can be executed by a user who is already logged into the system, in order to change to the root user? (type the command without any parameters)

a) su
b) root
c) chroot
d) user

497. Process information in the current shell can be obtained by using

a) kill
b) bg
c) fg
d) ps

498. Which signal is sent by the command "kill -9 " ?

a) INT
b) TERM
c) KILL
d) STOP

499. Which of the following values for STAT column of ps command is not true:

a) status R means running
b) Status S means sleeping
c) Status E means exited
d) Status Z means zombie

500. When a child process exits before the parent process exits, which of the following is true:

a) the child process becomes defunct

b) the parent process becomes defunct

c) if the parent process does not handle SIGCHLD, the child process becomes a zombie

d) none of the mentioned

501. A user issues the following command sequence:

```
$ a.out &
$ bash
$ a.out &
```

If the user kills the bash process, then which of the following is true?

a) the second a.out process is also terminated

b) the second a.out process becomes a defunct process

c) the first a.out process becomes a zombie process

d) init process becomes parent of second a.out process

502. The signal sent to a process when the Ctrl-C key is pressed is

a) KILL

b) TSTP

c) TERM

d) INT

503. we can change the priority of a running process using

a) nice

b) renice

c) priority cannot be changed for a running process

d) only superuser can change the priority

504. nohup is used to

a) automatically hang up the process after logout

b) continue the process after logout

c) create backgroung process

d) manually hang up the process after logout

505. To feed standard output of one command to standard input of another in a single shell session

a) IO redirection can be used

b) Named pipes can be used

c) The pipe operator provided by the shell can be used

d) It can not be done

506. Which of the following commands allows definition and assignment of environment variables under bash

a) env
b) export
c) environ
d) setenviron

507. While executing a command, the shell

a) Executes it in the same process (as shell)
b) Creates a child shell to execute it
c) Loads a special program to take care of the execution
d) None of the mentioned

508. Which variable contains current shell process id

a) $*
b) $?
c) $$
d) $!

509. Which command is used to debug a shell script program

a) set
b) set -x
c) debug
d) db

510. For every successful login, which script will be executed?

a) /etc/inittab
b) /etc/profile
c) /etc/login
d) /etc/init

511. Hidden files are

a) Those whose 'read' bit is set to 'h'
b) Permitted for (can be accessed) only superusers
c) Files that begin with a '.'
d) Files that cannot be opened by ordinary user for writing

512. Shell is ?

a) Command Interpreter
b) Interface between Kernel and Hardware
c) Interface between user and applications
d) Command Compiler

513. If a file with execute permissions set, but with unknown file format is executed

a) The file is passed to /bin/sh

b) The system returns an error

c) The current shell will try to execute it

d) None of the mentioned

514. Which of the following is true?

a) Shell is a process and can be started by superuser only

b) Shell is a built-in Kernel functionality

c) Shell is a wrapper for all the commands and utilities

d) None of the mentioned

515. Which is true with regards to the shell prompt

a) It can be accidentally erased with backspace

b) The prompt cannot be modified

c) The prompt can be customized (modified)

d) None of the mentioned

516. What is a shell in UNIX?

a) a program through which users can issue commands to UNIX

b) a window management system

c) the login screen

d) the thing that rides on the back of a turtle in UNIX

517. Which of the following represents an absolute path?

a) ../home/file.txt

b) bin/cat

c) cs2204/

d) /usr/bin/cat

518. The user bhojas logged in and performed the following sequence of command. What will be the output of the last command?

$ cd project/module1

$ pwd

a) /home/bhojas/project/module1

b) /home/project/module1

c) /usr/bhojas/project/module1

d) project/module1

519. BASH shell stands for?

a) Bourne-again Shell

b) Basic Access Shell

c) Basic to Advanced Shell

d) Big & Advanced Shell

520. Which of the following files will not be displayed by the command cat re* ?

a) reminder
b) receipt
c) Receipt
d) recipe-cake

521. The redirection 2> abc implies

a) Write file 2 to file abc
b) Write standard output to abc
c) Write standard error to abc
d) None of the mentioned

522. cmd 2>&1 > abc will

a) Write file2 to file1
b) Write standard output and standard error to abc
c) Write standard error to abc
d) Write standard output to abc & standard error to monitor

523. cmd > abc 2>&1 will

a) Write file2 to file1
b) Write standard output and standard error to abc
c) Write standard error to abc
d) Write standard output to abc & standard error to monitor

524. Which of these is the correct method for appending “foo” in /tmp/bar file?

a) echo foo > /tmp/bar
b) echo foo >> /tmp/bar
c) echo foo | /tmp/var
d) /tmp/bar < echo foo

525. Syntax to suppress the display of command error to monitor?

a) command > &2
b) command 2> &1
c) command 2> &2
d) command 2> /dev/null

526. The following commands gives the output like this

```
#cat file1 file2
#cat: file1: No such file or directory
hello
If we execute the command "cat file1 file2  1>2  2>&1" the output would be
```

a) cat: file1: No such file or directory hello
b) No output is displayed
c) Cat: 1>2: No such file or directory
d) hello

527. cat < file1 >> file2 | file3

a) file1 content will be appended to file2 and finally stored in file3
b) file1 content will be appended to file2 and file3 will be ignored
c) file2 and file3 will have same content
d) syntax error

528. Executing cat /etc/password > /dev/sda as superuser will

a) Write data into a regular file called /dev/sda
b) Write data to the physical device sda
c) Create a temporary file /dev/sda and write data to it
d) None of the mentioned

529. From where would the read statement read if the following statements were executed?

```
exec < file1
exec < file2
exec < file3
read line
```

a) It would read all the files
b) It would not read any files
c) It would read all the files in reverse order
d) It would read only file3

530. What is a context switch?

a) Kernel switches from executing one process to another
b) Process switches from kernel mode to user mode
c) Process switches from user mode to kernel mode
d) None of the mentioned

531. Pid of init process

a) 0
b) 1
c) 32767
d) none of the mentioned

532. What is the default maximum number of processes that can exist in Linux?

a) 32768

b) 1024

c) 4096

d) unlimited

533. How do you get parent process identification number?

a) waitpid

b) getpid()

c) getppid()

d) parentid()

534. Parent process id of a deamon process is_____

a) 2

b) 3

c) 4

d) 1

535. The process which terminates before the parent process exits becomes

a) Zombie

b) Orphan

c) Child

d) None of the mentioned

536. Return value of fork() system call can be:

a) -1,<0, 0

b) -1,>0, 0

c) -1,<0

d) none of the mentioned

537. If the fork() system call returns -1, then it means?

a) No new child process is created

b) The child process is an orphan

c) The child process is in Zombie

d) none of the mentioned

538. Fork returns _____ to parent process on success

a) 0

b) child process id

c) parent process id

d) none

539. How many times printf() will be executed in the below mentioned program?

```
main()
 {
      int i;
      for (i = 0; i < 4; i++)
      fork();
      printf("my pid = %d\n", getpid());
}
```

a) 4

b) 8

c) 16

d) 32

540. What is the output of the below code?

```
void exit_handler1();
 void exit_handler2();
 int main()
 {
       int pid;
       atexit(exit_handler1);
       atexit(exit_handler2);
       pid = fork();
       if(pid == 0)
       {
              _exit(0);
        }
        else
       {
              sleep(2);
              exit(0);
       }
       return 0;
}
```

a) Only child executes the exit_handler 1 and 2

b) Only parent executes the exit_handler 1 and 2

c) Both parent and child executes the exit_handler 1 and 2

d) Neither parent nor child executes the exit_handler 1 and 2

541. What is output of the following program?

```
int main()
 {
       fork();
       fork();
       fork();
       if (wait(0) == -1)
       printf("leaf child\n");
 }
```

a) “leaf child” will be printed 1 times

b) “leaf child” will be printed 3 times

c) “leaf child” will be printed 4 times

d) “leaf child” will be printed 8 times

542. Which niceness value among the following indicate most favourable scheduling?

a) 0
b) 19
c) 5
d) -20

543. The maximum time slice that can be given to a process in Linux (where tick is 10ms) is

a) 150ms
b) 10ms
c) 300 ms
d) 600ms

544. Nice can be used by an ordinary process to

a) increase the priority of a process
b) decrease the priority of a process
c) increase or decrease the priority of a process
d) none of the mentioned

545. On x86-32 Linux, at which address the code segment of the program starts?

a) 0x00000000
b) 0x08048000
c) 0x80000000
d) 0xbfff0000

546. On x86-32 Linux, at which address the user stack resides normally?

a) 0x00000000
b) 0x3fff0000
c) 0x7fff0000
d) 0xbfff0000

547. A system has 512MB of physical memory. Which among the following is not a suitable virtual memory size for this system architecture?

a) 512MB
b) 256M
c) 4GB
d) None of the mentioned

548. LRU stands for

a) Last received Unit
b) Least recently Used
c) Least recently usable
d) Lost Recoverd unit

549. Mm_struct maintains?

a) memory files
b) open files
c) pipe
d) active memory regions

550. Which sytem call can be used by a user process to lock a memory so that it cannot be swapped out?

a) memory files()
b) memlock()
c) pipe()
d) active memory regions

551. Is page table per process entity?

a) Yes
b) No

552. Among these files which has an ELF format

a) shared objects
b) core
c) executables
d) all of the mentioned

553. What is the use of strace command?

a) strace can be used to check the system calls called by the program. So, this can be used for debugging and benchmarking purposes
b) strace cannot be used to check the system calls called by the program
c) all of the mentioned
d) none of the mentioned

554. If one of the thread in multithreaded process is blocked on an I/O, which of the following is true?

a) The entire process with block if their is no kernel supported threads
b) Other threads of the process will continue to execute even if there is no kernel supported threads
c) It depends on specific implementatation
d) All of the mentioned

555. Which one can be a real time schedule policy?

a) SCHED_FIFO
b) SCHED_SPF
c) SCHED_OTHER
d) SCHED_FILO

556. In Linux kernel-2.6 Real time priority ranges from

a) 0 to 99

b) 0 to 139

c) -20 to 19

d) 100 to 139

557. Each process has unique

a) fd table

b) file table

c) inode table

d) data block table

558. File descriptor table indexes which kernel structure?

a) struct file

b) strruct fs_struct

c) files_struct

d) struct inode

559. What is the default number of files open per user process?

a) 0

b) 1

c) 2

d) 3

560. The file system information is stored in

a) Boot block

b) Super Block

c) Inode Table

d) Data Block

561. Switch table is used by

a) device special file

b) directory file

c) fifo

d) link file

562. What is the use of fcntl function?

a) locking a file

b) reading the file descriptor flag

c) changing the file status flag

d) all of the mentioned

563. Which function can be used instead of the dup2 to duplicate the file descriptor?

a) read()
b) open()
c) stat()
d) fcntl()

564. printf() uses which system call

a) open
b) read
c) write
d) close

565. read() system call on success returns

a) 0
b) -1
c) number of character
d) none

566. Which system call is used to create a hard link?

a) hardlink
b) link
c) symlink
d) ln

567. namei() is

a) ANSI C library function
b) C library function
c) System call
d) kernel routine

568. dup2(1,0)

a) closes the stdout and copies the stdin descriptor to stdout
b) closes the stdin and copies the stdout descriptor to stdin
c) will produce compilation error
d) None of the mentioned

569. If a signal is received by a process, when will it be processed?

a) It is processed immediately
b) It is processed when process is switching to kernel mode
c) It is processsed in the next timeslice given to the process
d) None of the mentioned

570. Which signal is generated when we press control-C?

a) SIGINT
b) SIGTERM
c) SIGKILL
d) SIGSEGV

571. Which signal is generated when we press ctrl-Z?

a) SIGKILL
b) SIGSTOP
c) SIGABRT
d) SIGINT

572. Which signal is sent when the Child process terminates?

a) SIGINIT
b) SIGKILL
c) SIGSTOP
d) SIGCHLD

573. Which of the following signal cannot be handled or ignored?

a) SIGINT
b) SIGCHLD
c) SIGKILL
d) SIGALRM

574. Another signal that cannot be caught is:

a) SIGPIPE
b) SIGHUP
c) SIGSTOP
d) SIGUSR1

575. When real interval timer expires which signal is generated?

a) SIGINT
b) SIGCHLD
c) SIGKILL
d) SIGALRM

576. Signals are handled using which system call?

a) kill
b) signal
c) both
d) none

577. Default action of SIGSEGV is

a) Terminate

b) Core dump + Terminate

c) Stop

d) Cont

578. The kill system call is used to

a) Send shutdown messages to all by superuser

b) Send a signal to a process

c) Kill processes

d) Stop the processes

579. What is the output of the below code?

```
void sig_handler ( int signum) {
    printf("Handled the signal\n");
}

int main() {
    int pid;
    signal (SIGKILL, sig_handler);
    pid = fork();
    if (pid==0) {
        kill(getppid(), SIGKILL);
        exit(0);
    } else {
        sleep(20);
    }
    return 0;
}
```

a) Error child cannot send a SIGKILL signal to parent

b) Parent goes to the signal handler, prints handled the signal and goes back to sleep

c) Parent goes to the signal handler, prints handled the signal and exits

d) Parent exits without going to the signal handler

580. Which is true regarding pipes?

a) half duplex

b) full duplex

c) message boundaries are preserved

d) unordered data

581. The persistancy of a FIFO is

a) process

b) kernel

c) file system

d) none of the mentioned

582. Advantage of FIFO over pipe is

a) related processes can communicate

b) unrelated processes can communicate

c) all of the mentioned

d) none of the mentioned

583. What mkfifo() creats?

a) pipe

b) unnamed pipe

c) named pipe

d) msg queue

584. System V IPC common attributes are

a) key

b) id

c) owner

d) all of the mentioned

585. Which one of the following is not system V IPC ?

a) Shared Memory

b) Semaphores

c) FIFO

d) Message Queues

586. Which system call is used to create Sys V message Queue.

a) msgget

b) shemget

c) semget

d) msgctl

587. Which is not the correct option for removing a message queue

a) ipcrm -Q

b) ipcrm -q

c) ipcrm -m

d) none of the mentioned

588. Message queues are created in

a) userspace

b) kernelspace

c) userspace & kernelspace

d) none of the mentioned

589. Command used to check shared memory is

a) ipcs

b) ipcs -m

c) ipcs -s

d) ipcs -q

590. The structure which keeps the information about shared memory in the kernel is

a) struct ipc_perm

b) struct semid_ds

c) struct shmid_ds

d) struct msgid_ds

591. Semaphore P( ) operation usually does the following:

a) descrements the semaphore count and the process sleeps if needed

b) increments the semaphore count

c) wakes up a sleeping process

d) none of the mentioned

592. Which call to use to set the resource count of semaphore?

a) semget( )

b) semctl( )

c) sem_setcount( )

d) sem_set_count( )

593. Race condition can be avoided by using

a) semaphore

b) mutex

c) socket

d) both semaphore & mutex

594. A server which is handling one client at a time is called as

a) single server

b) multiserver

c) concurrent server

d) iterative server

595. A server which is handling many clients at a time is called as

a) single server

b) multiserver

c) concurrent server

d) iterative server

596. A communication end-point is identified by

a) ip address
b) port number
c) both IP address and port number
d) none of the mentioned

597. UNIX/Linux kernel is?

a) Monolithic
b) Micro
c) Exo
d) Nano

598. Monolithic kernel

a) is highly extensiblity
b) has less run time overhead
c) smaller than micro level
d) suitable for real time system

599. Runlevel system command is used for?

a) getting the present and previous runlevel of the system
b) setting the runlevel attribute of the system in the inittab file
c) can be used to restart or reboot the system
d) all of the mentioned

600. Pick the run level to run Linux in multi user mode with networking?

a) 0
b) 3
c) 5
d) 6

601. Section 2 of manpage describes

a) Commands
b) System calls
c) Function calls
d) Drivers

602. System call can be implemented using which assembly instruction(s) on x86 processors?

a) int 0×80
b) sysenter
c) both int 0×80 & sysenter
d) None

603. x86 architecture uses big endian or little endian addressing mechanism?

a) little-endian

b) endian

c) big-endian

d) none of the mentioned

604. _____ timer is decremented only when the process is executing

a) ITIMER_REAL

b) ITIMER_VIRTUAL

c) ITIMER_PROF

d) None of the mentioned

605. Daemon process is a?

a) group leader

b) session leader

c) orphan process

d) all of the mentioned

606. The terminal used by a Daemon process is:

a) any terminal

b) no terminal

c) root terminal

d) system console

607. shared memory can be used for?

a) read only operations

b) append

c) read or read write operations

d) write only

608. Sysconf(_SC_PAGE_SIZE) returns?

a) size of the page

b) max size of the page

c) min size of the page

d) paging allowed or not

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Q1. The Command do you use to create Linux file system is --

- **A.** fsck
- **B. mkfs**
- **C.** mount
- **D.** None of the mentioned

Q2. Core of Linux operating system is_____ .

- **A.** Shell
- **B. Kernel**
- **C.** Terminal
- **D.** Command

Q3. Which of the following directory contains configuration files in Linux?

- **A.** /dev/
- **B. /etc/**
- **C.** /bin/
- **D.** /root/

Q4. The maximum filename size in Linux in bytes is 255.

- **A. True**

- **B.** False

Q5. Which command is used to remove files?

- **A. rm**
- **B.** dm
- **C.** erase
- **D.** delete

Q6. _____ command is used to remove the directory.

- **A.** rdir
- **B.** rd
- **C. rmdir**
- **D.** None of the above

Q7. How many primary partitions can exist on one drive?

- **A.** 16
- **B.** 1
- **C.** 2
- **D. 4**

Q8. FSF stand for -

- **A.** Free Software File
- **B. Free Software Foundation**
- **C.** First Serve First
- **D.** None of the above

Q9. _____is not a communication command.

- **A.** mail
- **B.** mesg
- **C. grep**
- **D.** write

Q10. Which of the following combination of keys is used to exit from terminal?

- **A.** Ctrl + z
- **B.** Ctrl + t
- **C. Ctrl + d**
- **D.** Ctrl + e

Q11. The OS which is not based on Linux is -

- **A. BSD**
- **B.** Ubuntu
- **C.** CentOs
- **D.** Redhat

Q12. _____command is used to record session in Linux.

- **A.** session
- **B.** script
- **C. both 1 and 2**
- **D.** None of the above

Q13. mv command can be used for -

- **A.** Renaming a file
- **B.** Move the file to different directory.
- **C. Both 1 and 2**
- **D.** None of these

Q14. The range of nice number in linux system is -

- **A.** -20 to 0
- **B. -20 to 19**
- **C.** 0 to 19
- **D.** 10 to 10

Q15. User passwords are stored in _____

- **A.** /root/password
- **B.** /etc/password
- **C. /etc/passwd**
- **D.** /root/passwd

Q16. Which is the default file system type of Linux.

- **A.** etx
- **B.** ext2
- **C. etx3**
- **D.** mimix

Q17. Hidden file can be viewed using _____.

- **A. ls -a**
- **B.** ls -l
- **C.** ls -h
- **D.** Is - k

Q18. Linux is an operating system based on UNIX and was first introduced by Linus Torvalds.

- **A. True**
- **B.** False

Q19. Which command is used to extract intermediate result in a pipeline -

- **A.** extract
- **B. tee**
- **C.** exec
- **D.** chgrp

Q20. Which of the following sign represents the user home directory?

- **A.** .
- **B.** /
- **C.** ..
- **D. ~**

Q21. The dmesg command shows .....

- **A. Kernel log messages**
- **B.** The daemon log messages
- **C.** The user login logoff attempts
- **D.** None of above

Q22. Which command is used to set terminal IO characteristic?

- **A.** tty
- **B.** ctty
- **C. stty**
- **D.** None of above

Q23. Which command is used to display the operating system name?

- **A.** os
- **B.** unix
- **C. uname**
- **D.** kernel

Q24. Which command is used to display the unix version?

- **A.** kernel
- **B.** uname -t
- **C. uname -r**
- **D.** uname -n

Q25. Which command is used to view compressed text file contents?

- **A.** cat
- **B. zcat**
- **C.** type

- **D.** None of above

1. Which of the following is page replacement policy using this strategy" Replace the page that hasn't been used for the longest period of time"?
A. Least recently used
B. Not recently Used
C. Clock
D. Optimal Page Replacement

2. What is the effect of fragmentation?
A. Increased complexity of algorithm
B. Leads to wastage of memory
C. Leads to page faults
D. Helps in multitasking

3. The component responsible for moving pages in and out of physical memory is
A. Long term scheduler
B. Short term scheduler
C. Medium term scheduler
D. Dispatcher

5. Which one is used to avoid context switching?
A. Semaphore
B. Spinlock
C. Mutex
D. Shared Memory

6.. When OS at the explicit request of another process creates a process, this action is ……..?
A. Process Reentrancy
B. Process Spawning
C. Process Synchronization
D. Process preemtiveness

7. Which CPU Scheduling is the fairest in terms of run time?
A. Round Robin
B. FIFO (First-In First-Out)
C. Priority
D. None of the above

8. Normally kernel mode bit is represented by
A. 1
B. 2
C. 0
D. none of these

9. Which level of scheduler should make a decision to determine which ready process should be
assigned the CPU when it next becomes available?
A. Short-term scheduler.
B. Medium-term scheduler.

C. Long-term scheduler.
D. None of the above.

10. A scheduling algorithm (at the level of short-term scheduling) favors those programs, which have used little processor time in the recent past. Which of the following is *true*?
A. This algorithm favors I/O bound processes.
B. This algorithm favors CPU bound processes.
C. This algorithm permanently starves CPU bound processes.
D. This algorithm permanently starves I/O bound processes.

11. What is busy waiting?
A. The repeated execution of a loop of code while waiting for an event to occur
B. The CPU is not engaged in any real productive activity during this period,
C. the process does not progress toward completion
D. all a , b & c

12. Poor response time is usually caused by
A. Process busy
B. High I/O rates
C. High paging rates
D. Any of the above

13. The list of processes waiting for a particular I/O device is called.
A. Device Queue
B. Job Queue
C. Ready Queue
D. All of these

14. Indefinite blocking of a process is called
A. Deadlock
B. Starvation
C. busy waiting
D. Zombie

15. The section of process program that uses the shared memory will be the …….of the process.
A. critical Section
B. process Control Block
C. Semaphore
D. pip

16. Process opens an existing file or creates a new file; kernel returns a non-negative integer, what is the return integer?
A. Inode number
B. Process Indentifier
C. File descriptor
D. Process return value

17. User whose user id is 0, called as
1) root 2) normal user
3) superuser 4) no user
A. a)only 1
B. only 4
C. both 1 &2
D. both 1&3

18. What is return value of read system call when end of file occurs?
A. -1
B. 0
C. Program hangs
D. none of these

19. What is the use of SIGCHLD signal?
A. Kernel notifies the parent process when process terminates.
B. When child process becomes orphan process.
C. Creation of child process with fork
D. None of these.

20. WIFEXITED (status) macro returns true when
A. Child terminated abnormally, by receipt of a signal that it didn't catch.
B. Child that terminated normally.
C. Child that is currently stopped.
D. None of these

21. If we are passing signal number 9 in our program, which signal we are sending?
A. SIGINT
B. SIGQUIT
C. SIGKILL
D. SIGSTOP

22. In message queue when msgtype =0 in msgrcv then
A. read the first message available on queue.
B. no message available on queue.
C. Program will hang
D. None of these

23. Which function will be used for deleting the message queue.
A. msgrcv
B. msgctl
C. msgget
D. msgrm

24. Which one is the fastest form of IPC?
A. Shared memory
B. message queue

C. semaphore
D. Pipe

25. Which one is correct option for removing message queue?
A. ipcrm –q
B. ipcrm –m
C. ipcrm –s
D. None

26. What happen when value of semaphore variable will be less than zero?
A. Value of semaphore will never go to zero.
B. All processes will be in wait state.
C. All processes have finished their execution.
D. None of these.

27. ret = semctl (semid,0,GETVAL);
if semctl function success and value of 0th semaphore of semaphore array is 6 then what is the value of ret?
A. 0
B. 6
C. 5
D. 1

28. In message queue when msgtype =0 in msgrcv function then
A. read the first message available on queue.
B. no message available on queue.
C. Program will hang
D. None of these

29. Which command will show single letter file name?
A. ls -a
B. ls a
C. ls ?
D. ls *

30. What does this following command? vim -o file1 file2
A. open file1 for edit
B. open file2 for edit
C. open both file1 and file2 for edit
D. Error

31.Device number is a 32 bit number out of which ….bit is major number and ..bit is minor number.
A. 20,12

B. 12, 20
C. 24 ,8
D. None of these

32. Linux device driver module runs on
A. User space
B. kernel space
C. both a & b
D. none of these

33. Blocking read is
A. reads data continuously
B. reads data when arrives
C. blocking read operation on continuous data
D. none of these

34. MODULE_VERSION in driver programming used to
A. get kernel module version.
B. set kernel module version.
C. check module version.
D. none of these

35. register_chrdev() does not require the argument
A. device type
B. major number
C. device name
D. device operation

36. Deadline Monotonic analysis is based on
A. Fixed Priority
B. Dynamic Priority
C. Both a & b
D. None of these

37. In a fixed-priority system Relative deadline of every task
A. Independent
B. Dependent
C. Both a & b
D. None of these

38. How do Linux processes communicate with RTLinux threads?
A. RT FIFO
B. RT PIPE
C. RT semaphore
D. None of these

39. In the definition of a real time system, which of the following is not true?
A. A real time system reacts to events in the environment by performing predefined actions within specified time.

B. Logical correctness of the system is mandatory.
C. A real time deadline must be met irrespective of system load
D. Missing a soft deadline is catastrophic.

40. In a RTOS, as the number of tasks increase, the task switching time should
A. Remain constant
B. Increase with the number of tasks increase
C. Decrease when the number of tasks increases
D. cannot predict

41. What is a system call?
A. Functions exposed by the kernel.
B. Functions exposed by C library.
C. Interrupts on x86 architecture.
D. Network related functionality.

42. User mode and system mode are modes of _____.
A. Memory
B. Operating system
C. CPU
D. System calls

43. Which command is used to search whole word “cdac” in given file path?
A. grep "cdac" path
B. grep "^cdac$" path
C. grep "*cdac*" path
D. grep "c*c" path

44. Which of the following is not valid for perl variables?
A. $ sign for scalars
B. @ sign for arrays
C. % sign for hash arrays
D. @ sign for strings

45. What the following perl snippet will do?

```
open(fd, 'file.txt') || die"error";
while(<fd>) {
print $_;
}
close(fd);
```

A. print $_ for n times.
B. print all lines in the file.
C. print all lines in file in reverse order.
D. will terminate the program.

46. Which of the following is not scheduling class in Linux?
A. SCHED_FIFO
B. SCHED_RR
C. SCHED_BATCH
D. SCHED_PRIO

47. Which command is used to set priority for process?
A. nice
B. taskset
C. chrt
D. chprio

48. Which system call is used to read exit status of child process?
A. read()
B. waitpid()
C. signal()
D. kill()

49. Semaphore initial count is 4. If 3 P and 2 V operations are performed then what will be count value?
A. 5
B. 3
C. 4
D. 9

50. Which Linux command is used to see SYS V semaphores created in the system?
A. ipcs -s
B. ipcs -m
C. ipcs -q
D. semctl

51. Which of the following care should be taken to use POSIX semaphores across the process?
A. Semaphore must be declared in shared memory section.
B. Semaphore must be declared globally.
C. Semaphore must be declared locally.
D. Semaphore must be created in the kernel space.

52. Which of the following statement is NOT true for TLB?
A. It stands for Translation Look-aside Buffer.
B. It is part of paging MMU.
C. It increases DMA speed.
D. It is used for address translation.

53. Each entry of segment table does not contain _____.
A. Base address of the segment.
B. Offset of the segment.
C. Permissions of the segment.
D. None of these.

54. Which of the following is not page replacement algorithm?
A. LRU
B. Optimal
C. FIFO
D. SSTF

55. What is Belady's anomaly?
A. As number of frames increases, number of page faults reduces.
B. As number of frames increases, number of page faults increase.
C. As number of frames increases, number of page faults does not change.
D. None of these.

56. If page requested by CPU is not present in main memory, which of the following occur?
A. Page fault
B. Segmentation fault
C. Page interrupt
D. Segmentation interrupt
57. Which block contains information about the free data blocks?
A. Boot block
B. Super block
C. inode list
D. Data blocks

58. Which layer redirects the service request to the appropriate file system manager?
A. System Call
B. Virtual File System
C. Buffer Cache
D. Disk Device Driver

59. Which of the following system call does not create process?
A. fork()
B. exec()
C. vfork()
D. clone()

60. When process try to access invalid address, which signal is sent to process?
A. SIGINT
B. SIGSTOP
C. SIGKILL
D. SIGSEGV

61. Which of the following is not POSIX thread attribute?

A. scheduling policy
B. priority
C. stack size
D. kernel stack

62. Which of the following is NOT characteristics of pipe?
A. Bi-directional
B. Kernel space mechanism
C. Stream based
D. Peer to peer communication

63. Which IPC mechanism do not have waiting queue associated with it?
A. Message Queue
B. Pipe
C. Shared Memory
D. Semaphore

64. Which of the following is true about RTAI?
A. It is real time Linux implementation based on RTLinux.
B. It treats Linux kernel as a low priority real time task.
C. RTAI supports IPC and other real time services.
D. All of these

65. Which of the following is NOT RTOS scheduling algorithm?
A. Rate Monotonic Algorithm
B. Round Robin Algorithm
C. Earliest Deadline First
D. None of these

66. Which IPC mechanism is used to communicate between RTAI task and Linux process?
A. FIFO
B. Semaphore
C. Shared Memory
D. Mailbox

67. What is priority inversion?
A. A low priority task waits for completion of high priority task.
B. A high priority task waits for completion of low priority task.
C. A interrupt handler is given more priority than real time task.
D. A real time task is given more priority than interrupt handler.

68. At system boot time hardware starts in……..
A. User mode
B. Kernel mode
C. both A & B
D. None of these

69. Which are different classes of device drivers?
A. Character devices
B. Block devices
C. Network devices
D. All of these

70. Which of the following statement is NOT true about kernel modules?
A. Kernel modules can access standard C library.
B. Kernel module have entry point and exit point functions.
C. A bug in kernel module can crash whole kernel.
D. "insmod" command is used to load kernel module.

71. Which macro is used to add kernel module functions to kernel symbol table?
A. MODULE_EXPORT()
B. EXPORT_SYMBOL()
C. EXPORT_KERNEL()
D. EXPORT_FUNCTION()

72. I. Major number identifies the driver associated with the device.
II. Minor number is used to identify exactly which device is referred to.
Which of the above statements are true?
A. only I
B. only II
C. I and II
D. None of these

73. Which file operation in device driver allows issuing device specific commands?
A. ioctl
B. write
C. mmap
D. fsync

74. Which of the following operation is performed by cdev_add()?
A. Create a device node under /dev
B. Make device entry in sysfs
C. Associate major and minor numbers with device file
D. All of these

75. printk() function's first argument is _____.
A. A message preceded by priority string.
B. A message suffixed by priority string.
C. A type of kernel logger.
D. None of these.

76. Which one is used to remove starvation problem?
A. Ageing mechanism with priority scheduling
B. by time slice method

C. with semaphore
D. All of these

77. Initial value of binary semaphore is
A. one
B. Depend upon number of available resources.
C. Depend upon number of processes.
D. None of these

78. Which of the following represents the open files?
A. file Operations structure
B. File structure
C. Inode structure
D. None of these

79. Which one is used by the kernel internally to represent files?
A. file Operations structure
B. File structure
C. Inode structure
D. None of these

80. In which directory printk message goes?
A. /proc/messages
B. /var/log/messages
C. /var/log/message
D. d.)/proc/kallsyms

1. What will the output after executing the following code of segment?

```
main() {
fork();
fork();
fork();
printf("Hello"); }
```

How many child processes will be created in this?

A. 3
B. 4
C. 6
D. 8

2. Relocatable programs
A. cannot be used with fixed partitions
B. can be loaded almost anywhere in memory
C. do not need a linker
D. can be loaded only at one specific location

3. Preemption is
A. forced de allocation of the CPU from a program which is executing on the CPU
B. release of CPU by the program after completing its task
C. forced allotment of CPU by a program to itself
D. a program terminating itself due to detection of an error

4. Normally user mode bit is represented by
A. 0
B. 1
C. 2
D. none of the above

5. Which one of the following is not shared by threads?
A. program counter
B. stack
C. both (A) and (B)
D. none of the above

6. To avoid race condition, the number of processes that may be simultaneously inside their critical section is
A. 8
B. 1
C. 16
D. 0

7. What do you mean by memory compaction?

A. combine multiple equal memory holes into one big hole
B. combine multiple small memory holes into one big hole
C. divide big memory hole into small holes
D. divide memory hole by 2

8. What does belady‟s anomaly related to?
A. page replacement algorithm
B. memory management algorithm
C. deadlock prevention algorithm
D. disk scheduling algorithm

9. 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

10. Which of the following is page replacement policy using this strategy “Replace the page that hasn‟t been used for the longest period of time” ?
A. least recently used page replacement
B. optimal page replacement
C. fifo page replacement
D. second chance page replacement

11. Time quantum is defined in
A. shortest job scheduling algorithm
B. round robin scheduling algorithm
C. priority scheduling algorithm
D. multilevel queue scheduling algorithm

12. Which one is the fastest form of IPC
A. shared memory
B. pipe
C. message queue
D. sockets

13. What is the return value of read system call when end of file occurs?
A. 0
B. a positive number
C. -1
D. none of these

14. Information about a process is maintained in a
A. stack
B. translation look aside buffer
C. process control block

D. program control block

15. The usual effect of abnormal termination of a program is :
A. signal destruction core dump file generation
B. system crash
C. program switch
D. core dump file generation

16. Using optimal page replacement algorithm calculate the number of page faults in referencing the following string of page numbers with the number of frames 3
7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1
A. 6
B. 8
C. 9
D. 10

17. Thrashing
A. is a natural consequence of virtual memory systems
B. can always be avoided by swapping
C. always occurs on large computers
D. can be caused by poor paging algorithms

18. Using priority scheduling algorithm, find the average waiting time for the following set of processes waiting time for the following set of processes given with their priorities in the order:

Process	**Burst**	**Time Priority**
P1	10	3
P2	1	1
P3	2	4
P4	1	5
P5	5	2

A. 8
B. 8.2
C. 7.75
D. 3

19. Address binding is
A. going to an address in memory
B. locating an address with the help of another address
C. binding two addresses together to form a new address in a different memory space
D. a mapping from one address space to another

20. If the resources are always preempted from the same process, ……. can occur.
A. deadlock
B. system crash
C. aging

D. starvation

21. The banker's algorithm is an example of a technique for
A. deadlock prevention
B. deadlock avoidance
C. deadlock detection
D. deadlock recovery

22. In segmentation, the segment base contains the :
A. starting logical address of the process
B. starting physical address of the segment in memory
C. segment length
D. none of the above

23. With the FIFO page replacement policy and enough space for storing 3 page frames, the memory page reference string „ABCABDDCABCD" would produce:
A. 5 page faults
B. 6 page faults
C. 7 page faults
D. 8 page faults

24. When the valid – invalid bit is set to valid, it means that the associated page:
A. is in the TLB
B. has data in it
C. is in the process's logical address space
D. is the system"s physical address space

25. Situation where two or more processes are reading or writing some shared data and the final result depends upon who runs precisely is called?
A. race condition
B. critical section
C. mutual exclusion
D. message passing

26. fork system call returns ……to child process
A. child"s pid
B. 0
C. 1
D. -1

27. Thread synchronization is achieved by
A. pthread_create
B. pthread_join
C. pthread_self
D. pthread_exit

28. Which semaphore API function provides a number of control operations on semaphore

A. semctl()
B. semget()
C. semop()
D. semstat()

29. Consider the following program

```
main() {
        int p[2];
        pipe(p);
        fork(); }
```

Choose the correct answer

A. the pipe will be recognized only by the parent process
B. p[0] is the file descriptor of the write end of the pipe
C. there will be 4 file descriptors in memory
D. the pipe will not be shared by both the parent and child processes

30. shmdt ( ) function is used to …….address space of our process

A. map
B. unmap
C. block
D. unblock

31. In real time operating system

A. all processes have the same priority
B. a task must be serviced by its deadline period
C. process scheduling can be done only once
D. kernel is not required

32. For real time operating systems, interrupt latency should be

A. minimal
B. maximum
C. zero
D. dependent on the scheduling

33. A conventional RTOS supports

A. preemptive kernel
B. non-preemptive kernel
C. depends on implementation
D. none of the above

34. Time duration required for scheduling dispatcher to stop one process and start another is known as

A. process latency

B. dispatch latency
C. execution latency
D. interrupt latency

35. The priority of a real time task:
A. must degrade over time
B. must not degrade over time
C. may degrade over time
D. none of these

36. A task executing in the ready state cannot be moved into which of the following states?
A. wait, ISR state
B. running state
C. dormant state
D. both (B) and (C)

37. The ..... scheduling algorithm schedules periodic tasks using a static priority policy with preemption.
A. earliest deadline first
B. rate monotonic
C. first cum first served
D. priority

38. A conventional real time task can be allocated
A. only fixed size stack, decided by kernel
B. variable size stack, decided by developer
C. dynamically expandable stack
D. all of the above

39. Reentrant function is one that
A. should be executed by only one task at a time otherwise data corruption
B. will allow 2 tasks to use it but not more than 2
C. will allow any number of tasks to execute it without data corruption
D. both (A) and (B)

40. Preemptive, priority based scheduling guarantees:
A. hard real time functionality
B. soft real time functionality
C. protection of memory
D. none of the these

1. **Which of the following are CPU scheduling algorithms?**
   A. Priority scheduling
   B. Round Robin
   C. Shortest Job First
   D. All of the above

2. **Operating systems**
   A. Provides a layer so as to act as a user-friendly interface that enables the programmer to draw a flow chart
   B. Links the program with subroutines
   C. Helps to create a flow chart of the programs
   D. All of these

3. **A process which is copied from main memory to secondary memory on the basis of requirement is known as -**
   A. Demand paging
   B. Paging
   C. Threads
   D. Segmentation

4. **FIFO scheduling is a type of:**
   A. Pre-emptive scheduling
   B. Non-pre-emptive scheduling.
   C. Deadline scheduling
   D. None of the above

5. **Which of the type of OS reads and reacts in terms of actual time?**
   A. Quick sharing OS
   B. Time Sharing OS
   C. Real time OS
   D. Batch OS

6. **A systematic procedure for moving the CPU to new process is known as-**
   A. Synchronization
   B. Deadlock
   C. Starvation
   D. Context Switching

7. **UNIX is written in which language?**
   A. C#
   B. C+ +
   C. C
   D. .NET

8. **Thread is a**
   A. Light weight process
   B. Heavy weight process
   C. Multi-process

D. 1/0 process

9. OS classifies the threads as-

A. Mainframe and motherboard level
B. Kernel and User level
C. Security and Memory level
D. OS and CPU level

10. Among the following CPU scheduling algorithms, which of these allocated the CPU first to the process that requests the CPU first?

A. FCFS
B. SJF
C. Priority scheduling
D. None

11. What are the two types of operating modes of AT?

A. Virtual mode, dedicated mode
B. Private mode, public mode
C. Real mode, protected mode
D. Direct mode, indirect mode

12. Which of the following schedules threads?

A. Virtual memory
B. Operating system
C. CPU
D. Input

13. What is meant by ready state of a process?

A. When the process is scheduled to run after some execution
B. When the process is currently using the CPU
C. When the process is dependent of the execution time of some other process.
D. None of these

14. Among the following, which is an example of a spooled device?

A. A line printer that prints the output of a number of jobs.
B. A terminal that inputs user data
C. A I/O device to display graphics.
D. None

15. Main memory of a computer system is?

A. Non-volatile
B. Volatile
C. Restricted
D. Unrestricted

16. For which of the following purposes in Banker's algorithm is used?

A. Preventing deadlock
B. Solving deadlock
C. Recover from deadlock
D. None

17. Device driver required in?

A. Register
B. Main memory
C. Disk
D. Cache

18. When are the register context and stack of thread deallocated?

A. when the thread terminates
B. when the thread blocks
C. when the thread unblocks
D. when the thread spawns

19. Threads is not shared among which of the following?

A. stack
B. program counter
C. both program counter and stack
D. none

20. For which of the following is the jacketing technique used?

A. to construct a new thread
B. to communicate between threads
C. convert a blocking system call into non blocking system call
D. None

21. For which of the following is resource sharing used?

A. an application having several threads of activity all within the same address space.
B. share the memory and resources of the process to which the threads belong
C. Compress the address space a process can use
D. all of the mentioned

22. Many to One model is at an advantage in which of the following conditions?

A. When the program needs to be multi-threaded
B. When there is a single processor present
C. When the program does not need multithreading
D. None

23. Identify the system calls that on termination does not return control to the calling point.

A. exec
B. fork
C. longjmp
D. ioctl

24. Consider the following program:

```
main()
{
    if(fork()>0)
```

```
sleep(100);
}
```

A. infinite process
B. orphan process
C. zombie process
D. none

25. The output of the following C program is?

```
int main(){
  fork();
   fork();
   printf("code ");
}
```

A. code code code code
B. code code code
C. code code
D. code

26. Identify the call which never returns an error?

A. fork
B. getpid
C. ioctl
D. open

27. What of the following defines Thread cancellation?

A. The process of terminating a thread process before its execution
B. The process of removing a thread after its work is executed
C. The process of destroying the thread after its work is executed
D. none

28. When a thread terminates some target thread immediately, it is known as?

A. Immediate Termination
B. Asynchronous termination
C. Synchronous termination
D. Deferred cancellation

29. Signals of some given type are

A. sent together
B. queued
C. stacked
D. none

30. Which of the following commands in UNIX is used to send a signal?

A. send
B. kill
C. sigsend
D. none

31. The speed of writing data in magnetic tape disks is comparable to that of disk drives. State True/False

A. True
B. False
C. Both, depends on the data
D. None

32. What else is a command interpreter called?

A. prompt
B. kernel
C. command
D. shell

33. Select the correct definition of spooling.

A. Spooling is a type of fast memory
B. Spooling holds a single copy of data
C. Spooling holds copy of all data in the system
D. none

34. Which of the following is the only state transition that is initiated by the user process itself?

A. dispatch
B. wakeup
C. block
D. none

35. Identify the two steps of a process execution.

A. CPU & I/O Burst
B. I/O & OS Burst
C. Memory & I/O Burst
D. CPU and Memory burst

36. Why is CPU scheduling done?

A. decrease CPU utilisation
B. decrease cost
C. increase CPU utilisation
D. None

37. The most optimal CPU scheduling algorithm is _____

A. Shortest Job First
B. First Come First Serve
C. Round robin
D. None

38. How many minimum variables is/are required to share between processes, so as to solve the critical section problem?

A. one
B. two
C. three
D. four

39. Which of the following is known as uninterruptible unit?

A. single
B. static
C. atomic
D. none of the mentioned

40. Semaphore is a __ and it helps to solve the problem of ___?

A. atomic, critical section
B. integer variable, memory error
C. integer variable, critical section
D. atomic, memory error

41. Which of the following are two types of atomic operations performed by semaphores?

A. wait, signal
B. wait, stop
C. signal, stop
D. signal, wait

42. The two types of semaphores are-

A. Counting and decimal semaphore
B. Counting and binary semaphore
C. Counting and mutex
D. None

43. A binary semaphore has a value of

A. 0
B. 1
C. -1
D. 2

44. The release and request of resources are a type of which of the following?

A. system calls
B. I/O interrupts
C. command lines
D. None

45. Is mutual exclusion required for shareable resources?

A. Yes
B. No
C. Maybe
D. None

46. Unsafe states are?

A. Not deadlocks
B. Deadlocks
C. Livelock
D. None

47. When can the binding of instructions and data to memory addresses be done?

A. Load time
B. Compile time
C. Execution time
D. All of the above

48. Which of the following is also known as the base register?

A. Relocation register
B. Regular register
C. Delocation register
D. Basic register

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

A. Linux
B. DOS
C. Oracle
D. Windows

50. Which of the following is a single user operating system?

A. Windows
B. Ms-DOS
C. MAC
D. None

51. To access the services of operating system the interface is provided by the?

A. System Calls
B. API
C. Library
D. Assembly Instructions

52. The size of virtual memory is based on which of the following?

A. CPU
B. Address Bus
C. RAM
D. Data Bus

53. Which of the following is an example of a real-time operating system?

A. **Process Control**
B. MS DOS
C. WIndows XP
D. Lynx