freelance_Project available to buy contact on 8007592194

SR.NO	Project NAME	Technology
1	E-Learning HUB	React+Springboot+MySql
2	PG MATES	React+Springboot+MySql
3	Tour and Travel	React+Springboot+MySql
4	Marriage Hall booking	React+Springboot+MySql
5	Bus ticket booking Mini Project	React+Springboot+MySql
6	Quizz App /Exam Portal Mini Project	Springboot,MySql,JSP,Html
7	Event Management System	React+Springboot+MySql
8	Hotel Mangement System	React+Springboot+MySql
9	Agriculture Web Project	React+Springboot+MySql
10	AirLine Reservation System	React+Springboot+MySql
11	E-Commerce Web Project	React+Springboot+MySql
12	Sport Ground Booking	React+Springboot+MySql
13	CharityDonation web project	React+Springboot+MySql
14	Hospital Management Project	React+Springboot+MySql
15	Online voting System Mini project	Springboot,MySql,JSP,Html
16	E-Commerce shop mini project	Springboot,MySql,JSP,Html
17	Job Portal web project	React+Springboot+MySql
18	Insurance policy Portal	React+Springboot+MySql
19	Transpotation Services portal	React+Springboot+MySql
20	E-RTO Driving licence portal	React+Springboot+MySql
21	doctor Appointment Portal	React+Springboot+MySql
22	Online food delivery Project	React+Springboot+MySql
23	Muncipal Corporation Management	React+Springboot+MySql
24	E-College Portal Project	React+Springboot+MySql
25	Gym Management	React+Springboot+MySql
X 26	Bike Booking System Portal	React+Springboot+MySql
27	Food Waste Management Portal	React+Springboot+MySql
28	Online Pizza delivery Portal	React+Springboot+MySql
29	Fruite Delivery portal	React+Springboot+MySql
30	HomeRental Booking Project	React+Springboot+MySql
31	FarmerMarketplace	React+Springboot+MySql

USM's Shriram Mantri Vidyanidhi Info Tech Academy

Operating System Question Bank eDAC May 21

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) 9The operating system of a computer serves as a software interface between the user and the

a. Hardware b. Peripheral c. Memory **d. Screen**

10) A thread is a _____ process.

a. Heavy Weight b. Multiprocess c. Inter Thread **d. Light weight**

11) 1 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 itsexecution
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) 4A 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**

a.

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 :
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 mentioned c. **both (i) and (ii)** d. none of the

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

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

57) 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**

58) 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

59) 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**

a.

60) 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**

61) 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

62) 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

63) 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

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

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

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

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

68) Invalid memory access to computer system is a **a. trap** **b.** program c. process d. interrupt

69) 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

70) 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

a.

71) 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

72) Unix OS was first developed at

a. Microsoft Corp, USA **b. AT & T Bell Labs , USA**

c. IBM , USAd.Borlan d. Internationa, USA

73) Internal value associated with the standard error device.

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

74) A file may have more than one name. This is accomplished using which of the following commands? a. dup **b. ln** c. name d. fork e. cp

75) Which command displays all information about every system process?

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

76) 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

77) 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

78) 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

79) When we are executing a shell script the shell acts as

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

80) A null variable X can be created using

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

a.

81) init _____ halts the system
a. 1 **b.0** c. h d.5

82) 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

83) A hierarchical structure consisting of directories and files
a. Track b. cylinder c. partition **d. filesystem**

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

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

86) To find out a file's inode number, use this option on the "ls" command. a. **-i** b. -inode c. -inum d. -in

87) 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

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

89) 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

a.

90) The run configuration file in Vi is called
a. cshrc b. virc **c. bashrc** d. exrc

91) Use the following command to save and exit from Vi.
ZZ b.:w c. :q! d. wq **e. Both a and d option**

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

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

94) 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

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

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

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

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

99) 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----

100) The tar command is used to
a. Print the contents of a file b. Reformatting a file before printing

a.

c. Making archive tapes d. Merging a file

101) 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

102) 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 $.

103) The "nice" command is used to
a. Communicate with other users
b. **Improve relationships**
c. Change Priority levels of running processes
d. Create processese. format a document so that its look nice

104) 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

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

106) 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

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

108) Answer the following:-
a. What is the difference between the two commands.
b. $ cat < fileone > filetwo 2> errorlst
c. $ cat > filetwo 2> errorlst < fileone
d. Ans: It's a same command, the order of redirection make no difference

109) 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 indicatingit is successfully executed or have error
Exit Status value is stored in environment variable $?

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

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

112) 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**

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

114) 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

115) 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

116) 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

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

118) 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**

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

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

121) 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**

122) The objective of multi-programming is to: (choose two)

a.

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**

123) 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

124) 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

125) 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

126) Time quantum is defined in
a. shortest job scheduling algorithm **b. round robin scheduling algorithm**
c. priority scheduling algorithm d. multilevel queue scheduling algorithm

127) 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

128) 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

129) 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

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

131) 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

132) 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

133) 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

134) The _____ swaps processes in and out of the memory.

a. **memory manager unit** b. CPU c. CPU manager d. user

135) 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

136) Operating System maintains the page table for **each process** b. each thread
c. each instruction d. each address

a.

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

138) 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

139) 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

140) 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

141) 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

142) 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

143) 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

144) 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

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

a.

146) 1 Logical memory is broken into blocks of the same size called _____.
a. frames **b. pages** c. backing store d. None of these

147) The size of a page is typically:
a. varied **b. power of 2** c. power of 4 d. none of the mentioned

148) Because of virtual memory, the memory can be shared among **processes** b. threads c. instructions d. none of the mentioned

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

150) 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

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

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

153) 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

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

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

156) 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.

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

a.

158) 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

159) 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

160) 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

161) Who is called a supervisor of computer activity?
Memory b. **Operating System** **c.** OCI/O Device d. Control Unit
162) 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

163) _____ 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

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

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

166) If process is running currently executing, it is in running
a. Mode b. Process c. **State** d. Program

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

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

a.

169) 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

170) Which of the following memory allocation scheme suffers from External fragmentation?

a. Fixed Memory Partition **b. Dynamic Memory Partition** c. Paging d. None

171) 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 172. A program at

172) the time of executing is called _____.

a. Dynamic program b. Static program c. Binded Program **d. A Process**

173) 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

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

a.

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

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

177) 1 FIFO scheduling is _____.
a. Preemptive Scheduling **b. Non Preemptive Scheduling**
c. Deadline Scheduling d. Fair share scheduling

178) 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

179) 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

180) 1 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

181) 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

182) 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

183) 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

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

185) 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

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

187) 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

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

189) 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

190) 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

191) Which scheduler selects which processes should be brought into the ready queue?

a. Real-term **b.Long-term** c. Medium-term d.Short-term

192) 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

193) 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**

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

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

196) 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

197) _____ 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

198) 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

199) 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

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

201) 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

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

203) 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**

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

205) 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**

206) 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**

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

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

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

210) 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

211) 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 accessa non shareable resources
c. **Deadlock arises when process is holding some more resources that are already hold by some other process and no onewant 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

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

213) 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**

214) 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**

215) 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

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

217) 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

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

219) 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

220) 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

221) 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

222) 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

223) 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

224) 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

225) 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

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

227) Internal Value associated with the standard error device
a. 0 **b. 1** c. 2 d. 9 e. 3
228) The redirection symbol for output is
a. > b. < c. ^ d. |

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

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

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

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

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

234) 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

235) 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

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

237) 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

238) 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

239) 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

240) 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

241) 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]…**

242) 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

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

244) 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

245) 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

246) 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

247) 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

248) 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

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

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

251) 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

252) 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

253) 253. 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

254) 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

255) 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

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

257) 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**

258) 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

259) 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**

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

261) 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**

262) 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

263) 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

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

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

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

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

268) 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

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

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

271) 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

272) 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**

273) 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

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

275) 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

276) 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

277) 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

278) 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

279) 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

280) 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 kernel
d. user threads with the help of heavy weight

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

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

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

284) 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

285) 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

286) 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

287) 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

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

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

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

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

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

294) 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

295) 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

296) _____ 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

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

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

299) _____ 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

300) 300. 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

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

302) 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

303) 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.

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

305) 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

306) 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

307) 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 thefile system

308) 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

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

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

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

312) To copy a directory instead of a file which switch is used in cp?
a. -a b. –v c. -R d. -c

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

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

315) Which command is used to rename a file?

a. ren b. cp **c. mv** d. none of the above

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

317) 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

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

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

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

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

322) chmod does what?
a. updates the mode of the file b. changes the access rights
c. updates the access time of the file **d. Both a & c**

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

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

325) 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)**

326) 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**

327) 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

328) 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
329) Which of the following is a positional parameter?
a. &0 **b. $0** c. @0 d. none of the above

330) 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**

331) 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

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

333) . 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

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

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

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

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

338) 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**

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

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

341) 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.

342) 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.

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

344) 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.

345) In an operating system using paging , if each 32-bit address is viewed as a 20-bit page identifier plus a 12bit 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.

346) 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.

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

348) 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.

349) 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.

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

351) 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.

352) 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

353) 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% d.100%

354) "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

355) 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

356) 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

357) "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.

358) "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.

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

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

361) 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.

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

363) The command used to display long listing of file is:
a. **ls –l** b. ls –a c. ls –t d. ls –r
364) The _____ file stores information about file systems that are mountable during booting:
a. /lib b. /mnt c. /etc/fstab **d. /usr/local**

365) 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

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

367) 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

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

369) 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.

370) 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.

371) 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

372) 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.

373) 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

374) 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 1and so on…)
a. Leaving. b. Skipping. c. Interleaving. d. Jumping

375) 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

376) 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).

377) _____ 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

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

379) To hold the exit status of the previous command _____ command is used.
a. $$ b. $? c. $/ d. $

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

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

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

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

384) 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

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

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

387) 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

388) 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

389) 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

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

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

392) Which of the following is not an operating system?
a. SuSE b. Unix **c. OSD** d. DOS

393) Object modules generated by assemblers may contain unresolved references. These are resolved using other objectmodules by the _____.
a. linker b. loader c. debugger d. compiler

394) Which of the following is not a necessary conditionfor a deadlock?
a. Mutual Exclusion b. Circular wait
c. No preemption of resources **d. None of the above**

395) An operating system is _____.
a. Integrated software b. CD-ROM software **c. System software** d. Application software

396) Match the operating system abstractions in the left column to the hardware components in the right column a. Thread
1. Interrupt Virtual Address Space
2. Memory File System
3. CPU Signal
4. Disk

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

397) 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

398) Transfer of information to and from main memorytakes place in terms of _____.
a. Bytes b. Words c. Bits d. Nibbles

399) 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 notbe completely in memory**

400) 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

401) 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 intomemory and switches the CPU from one jobto another as required**
c. runs programs over more than one processor
d. None of the above

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

403) 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

404) 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**

405) 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

406) One function of an operating system is to handleinterrupts. 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

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

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

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

410) 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

411) 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

412) What do you mean by computer interrupt?
a. **When a device has data to transfer it makesan interrupt. that means it needs your attention, the processor then stops what it isdoing and deals with the device**
b. The computer is interrupted by a signal fromspace saying it needs to close down theillegal application
c. when on word processor, if you type to muchthe computer makes an interrupt to let youthere is no more room to type
d. When someone tries to add to yourConversation

413) Multiprogramming systems_____.
a. Are easier to develop than singleprogramming systems
b. Execute each job faster
c. **Execute more jobs in the same time period**
d. Are used only one large mainframe Computers

414) The components that take data are located in the _____.
a. Input devices b. output devices c. system unit d. storage component

415) 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

416) The heart of any computer is processing the input in order to provide useful _____. a. Information b. Output c. Kernel d. Communication

417) 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

418) . 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

419) 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 420) 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

421) 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

422) 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

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

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

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

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

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

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

429) 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

430) 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

431) 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

432) 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
433) 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

434) 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

435) 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

436) 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

437) What do you mean by defragmentation?
a. keyboard that allows for a more naturalpositioning of your arms and hands.
b. The time it takes to read/write head to moveto a specific data track; one of the delaysassociated with reading or writingdata on acomputer 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.**

438) . Which of the following memory management schemes optimizes fragmentation? a. Single-user contiguous scheme
b. Fixed partition

c. Dynamic partition
d. **Relocatable dynamic partitions**

441) The _____ is used to store the highest location in memory accessibleby each program.

442) _____ 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.

443) 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

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

445) Computers use the _____ language to process data.
a. Processing b. kilobyte **c. Binary** d. Representational

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

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

448) 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

449) 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

450) 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

451) _____ signal generate when we try to access the illegal memory location using invalid pointer.

a. SIGSTOP b. SIGSEGV c. SIGTERM d. SIGNULL

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

453) 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.

454) 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

455) 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.

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

457) In static priority based scheduling _____.
a. Priorities are decided at the time of the design and not changed during execution.
b. Priorities are decided at the time of design and may be changed during execution by APIs.
c. Priorities are decided by the scheduler during execution.
d. All of the above

458) Paging leads to _____.

459) a. Internal Fragmentation b. External Fragmentation c. Both 1 and 2 d. All of the above

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

461) 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

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

463) Which is the Linux kernel image file from thefollowing 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

464) 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.

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

466) 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 spaceprovided by the process.

467) Which module gives control of the CPU to the process selected by the short-term scheduler?
a. none of the mentioned b. interrupt c. **dispatcher** d. scheduler

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

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

470) Time quantum is defined in
a. priority scheduling algorithm b. **round robin scheduling algorithm**
b. multilevel queue scheduling algorithm d. shortest job scheduling algorithm

471) Which one of the following can not be scheduled by the kernel?
a. none of the mentioned b. process c. kernel level thread d. **user level thread**

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

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

474) Complex scheduling algorithms :
a. **are very appropriate for very large computers**
b. use minimal resources
c. use many resources
d. All of these

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

476) The offset 'd' of the logical address must be :
a. **between 0 and segment limit** b. greater than segment limit
c. greater than the segment number d. between 0 and the segment number

477) The address of a page table in memory is pointed by
a. page register b. program counter c**. page table base register** d. stack pointer

478) The page table contains
a. page size b. none of the mentioned
c. page offset **d. base address of each page in physical memory**

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

480) The operating system and the other processes are protected from being modified by an already running process because :
a. they are in different logical addresses
b. they are in different memory spaces
c. they have a protection algorithm
d. **every address generated by the CPU is being checked against the relocation and limit registers**

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

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

483) Another solution to the problem of external fragmentation problem is to : a. All of these
b. permit larger processes to be allocated memory at last
c. permit smaller processes to be allocated memory at last
d. **permit the logical address space of a process to be noncontiguous**

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

485) External fragmentation exists when :
a. A request cannot be satisfied even when the total memory is free
b. **Enough total memory exists to satisfy a request but it is not contiguous**
c. None of these
d. The total memory is insufficient to satisfy a request

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

487) Every address generated by the CPU is divided into two parts : (choose two)
a. frame bit b. **page offset** c. **page number** d. frame offset

488) The _____ table contains the base address of each page in physical memory.
a. **page** b. process c. frame d. memory

489) With paging there is no _____ fragmentation.
a. None of these b. internal c. either type of d. **external**

490) The page table registers should be built with _____.
a. very low speed logic b. None of these
b. **very high speed logic** d. a large memory space

491) What is operating system?

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

492) 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 remains in the memory during the entire computer session
d. **kernel is made of various modules which can not be loaded in running operating system**

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

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

495) By operating system, the resource management can be done via
a. space division multiplexing b. none of the mentioned
b. both (a) and (b) d. time division multiplexing

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

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

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

499) The OS X has
a. **hybrid kernel** b. monolithic kernel
c. monolithic kernel with modules d. microkernel

500) 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

501) 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**

502) A process can be terminated due to
a. killed by another process b. **all of the mentioned** c. fatal error d. normal exit

503) What is the ready state of a process?
a. when process is unable to run until some task has been completed
b. **when process is scheduled to run after some execution**
c. when process is using the CPU
d. none of the mentioned

504) The address of the next instruction to be executed by the current process is provided by the
a. process stack b. **program counter** c. pipe d. CPU registers

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

506) The state of a process is defined by : a. **the current activity of the process** b. the activity to next be executed by the process
c. the activity just executed by the process
d. the final activity of the process

507) Which of the following is not the state of a process ?
a. New b. Waiting c. Ready d. Terminated **e. Old**

508) The entry of all the PCBs of the current processes is in :
a. Process Register b. Process Unit c. Program Counter d. **Process Table**

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

510) Fragmentation is

a. fragments of memory words unused in a page
b. fragments of memory words used in a page
c. dividing the main memory into equal-sized fragments
d. dividing the secondary memory into equal sized fragments

511) 516. Critical region is
a. the portion of the main memory which can be accessed only by one process at a time
b. a part of the operating system which is not allowed to be accessed by any process
c. **a set of instructions that access common shared resource which exclude one another in time** d. none of the above

512) 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. READY state b. BLOCKED state c. TERMINATED state d. SUSPENDED state

513) Pre-emptive scheduling, is the strategy of temporarily suspending a running process
a. when it requests (I/O) b. to allow starving processes to run
c. before the CPU time slice expires d. none of the above

514) Some computer systems support dual mode operation—the user mode and the supervisor or monitor mode. These refer to the modes
a. of memory access
b. by which user programs handle their data
c. by which the operating system executes user programs
d. **in which the processor and the associated hardware operate**

515) In Round Robin CPU scheduling, as the time quantum is increased, the average turn around
a. remains constant **b. varies irregularly** c. increases d. decrease

516) .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

517) To obtain better memory utilization, dynamic loading is used. With dynamic loading a routine is not loaded until it is called for. For implementing dynamic loading,
a. special support from operating system is essential
b. special support from hardware is essential
c. special support from both hardware and operating system are essential
d. **user programs can implement dynamic loading without any special support from the operating system or the hardware.**

518) Semaphores are used to solve the problem of
a. race condition b. mutual exclusion c. process synchronization **d. Both (B) and (C)**

519) Dijkstra's banking algorithm in an operating system solves the problem of
a. mutual exclusion b. context switching **c. deadlock avoidance** d. deadlock recovery

520) Virtual memory is
a. an extremely large main memory
b. an extremely large secondary memory
c. a type of memory used in super computers
d. an illusion of an extremely large memory

521) 526. Overlay is
a. a specific memory location
b. a part of an operating system
c. overloading the system with many user files
d. **a single contiguous memory that was used in the olden days for running large programs by swapping.**

522) The only state transition that is initiated by the user process itself is
a. block b. wakeup c. dispatch d. none of the above

523) Kernel is
a. the software which monitors the operating system
b. **the set of primitive functions upon which the rest of operating system functions are built up**
c. considered as the critical part of the operating system
d. none of the above

524) Sector interleaving in disks is done by
a. the operating system
b. the disk manufacturer
c. the disk controller cord
d. none of the above

525) Dirty bit is used to show the a.
wrong page in the memory
b. page with corrupted data
c. page that is less frequently accessed
d. **page that is modified after being loaded into cache memory**

526) The first-fit, and the worst-fit algorithm can be used for
a. linked allocation of memory
b. indexed allocation of memory
c. contiguous allocation of memory
d. all of the above

527) In a paged memory, the page hit ratio is 0.35. The time 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

528) In a multi-user operating system, 20 requests are made to use a particular resource per hour on an average. The probability that no requests are made in 45 minutes is

a. e-15 b. e-5 c. 1 - e-5 **d. 1 – e-10**

529) Disk scheduling involves deciding

a. which disk should be accessed next
b. **the order in which disk access requests must be serviced**
c. the physical location where files should be accessed in the disk
d. none of the above

530) In a multiprogramming environment

a. **more than one process resides in the memory**
b. the programs are developed by more than one person
c. the processor executes more than one process at a time
d. a single user can execute many programs at the same time

531) In which of the following directory systems, is it possible to have multiple complete paths for a file starting from the root directory?

a. Single level directory b. Two level directory
c. Tree structured directory **d. Acyclic graph directory**

532) Which of the following is true?

a. The linkage editor links object modules during compiling or assembling.
b. **The linkage editor links object modules and resolves external references between them before loading.**
c. The linkage editor resolves external references between the object modules during execution time.
d. The linkage editor is used to edit programs which have to be later linked together.

533) Fence register is used for

a. file protection b. CPU protection **c. memory protection** d. all of the above

534) If the property of locality of reference is well pronounced in a program a. the number of page faults will be more

b. the number of page faults will be less
c. execution will be faster
d. **Both (B) and (C)**

535) With a single resource, deadlock occurs
a. if there are only two processes competing for that resource
b. if there is a single process competing for that resource
c. if there are more than two processes competing for that resource
d. **none of the above**

536) Supervisor call
a. is a call with control functions
b. is a call made by the supervisor of the system
c. **are privileged calls that are used to perform resource management functions, which are controlled by the operating system.**
d. is a call made by someone working in root directory

537) Working set (t, k) at an instant of time, t, is the set of a. k references with high frequency
b. **pages that have been referenced in the last k time units**
c. k future references that the operating system will make
d. future references that the operating system will make in the next 'k' time units

538) Concurrent processes are processes that **a. overlap in time**
b. do not overlap in time
c. are executed by a processor at the same time
d. none of the above

539) In paged memory systems, if the page size is increased, then the internal fragmentation generally **a. becomes more** b. becomes less c. remains constant d. none of the above

540) Which of the following is an example of a SPOOLED device?
a. The secondary memory device in a virtual memory system.
b. **A line printer used to print the output of a number of jobs.**
c. The terminal used to enter the input data for a program being executed. d. None of the above

541) The page replacement policy that sometimes leads to more page faults when the size of the memory is increased is
a. FIFO b. LRU c. no such policy exists d. none of the above

542) An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of units of R such that no deadlock will ever occur is
a. 3 **b. 4** c. 5 d. 8

543) At a particular time of computation, the value of a counting semaphore is 7. Then 20 P operations and 'x' V operations were completed on this semaphore. If the final value of the semaphore is 5. x will be
a. 15 b. 22 **c. 18** d. 14

544) Memory protection is of no use in a
a. single user system b. non-multitasking system
c. non-multiprogramming system **d. none of the above**

545) Which of the following are single-user operating systems?
a. MS-DOS b. UNIX c. XENIX **d. Both (A) and (C)**

546) The size of the virtual memory depends on the size of the
a. address bus b. data bus c. main memory d. none of the above

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

548) Which of the following are true?
a. Re-entrant procedures can be called recursively.
b. Re-entrant procedures cannot be called recursively.
c. A re-entrant procedure can be called even before the procedure has not returned from its previous call.
d. Both (A) and (C) are true

549) In a system that not support swapping
a. the loader binds relocatable addresses to physical addresses.
b. the compiler normally binds symbolic addresses to physical addresses.
c. the compiler normally binds symbolic addresses (variables) to relocatable addresses. **d. Both (A) and (C)**

550) Spatial locality refers to the problem that once a location is referenced
a. it Will referenced again b. it will not be referenced again
c. a nearby location will be referenced soon d. none of the above

551) Page fault occurs when
a. the page is in main memory **b the page is not in main memory**
c. one tries to divide a number by 0 d. the page is corrupted by application software

552) Determine the number of page faults when references to pages in the order - 1, 2, 4, 5, 2, 1, 2, 4. Assume that the main memory can accommodate 3 pages and the main memory already has the pages 1 and 2, with page 1 having been brought earlier than page 2, (Assume LRU algorithm is used)
a. 3 b. 5 **c. 4** d. none of the above

553) Which of the following are real-time systems?
a. An on-line railway reservation system b. A process control system
c. Aircraft control system **d. Both (B) and (C)**

554) Necessary conditions for deadlock are a. Non-preemption and circular wait
b. Mutual exclusion and partial allocation
c. **Both (a) and (b)**
d. None of the above

555) At a particular time, the value of a counting semaphore is 10. It will become 7 after
a.3 V operations b. 3 P operations
c. 13 P operations and 10 V operations **d. Both (B) and (C)**

556) Mutual exclusion problem occurs
a. among processes that share resources
b. between two disjoint processes that do not interact
c. among processes that do not use the same resource
d. none of the above

557) Which of the following.is a service not supported by the operating system?
a. I/O operation **b. Compilation** c. Accounting d. Protection

558) A state is safe if the system can allocate resources to each process (up to its maximum) in some order and still avoid deadlock. Which of the following are true?
a. Deadlocked state is unsafe.
b. Deadlocked state is a subset of unsafe state.
c. Unsafe state may lead to a deadlock situation.
d. **All are true.**

559) In which of the following scheduling policies does context switching never take place?
a. Round-robin b. Shortest job first c. First-cum-first-served **d. Both (B) and (C)**

560) 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.

561) Which of the following is a non-preemptive O.S.?
a. UNIX b. Windows 95 c. Windows NT **d. None**

562) The following is not a form of IPC
a. Semaphore b. Pipe c. Shared memory **d. Buffering**

563) The fol. is a part of FAT
a. Sector info b. Disk type c. Modified info d. Date info

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

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

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

567) 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**

568) 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**

569) The available routing schemes are :
a. fixed routing b. virtual routing c. dynamic routing

570) 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**

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

572) Which of the following CPU scheduling algorithmswill prevent starvation problem?
a. Shortest-job-first b. Priority-scheduling
c. Priorit echanism y-scheduling with aging d. None of the above

573) 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 resourced.
d. All processes in the ready queue enter the wait queu

574) 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

575) 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

576) . 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

577) 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

578) 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

579) 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

580) 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.

581) 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

582) 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

583) 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

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

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

586) 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

587) 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

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

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

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

591) 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

592) 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

593) 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

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

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

596) 80286 the addressing scheme is _____ addressing c
a. 8 bit b. 16 bit c. **24 bit `** **d.**28 bite. 32 bit

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

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

599) 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

600) 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.

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

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

603) 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

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.
FIFO and _Optimum page replacement algorithm_ are the popular page replacement algorithms.

8) _____ is to NT , where as _____ is to DOS and _____ is to UNIX.

9) Give the expansion of the following with reference to the operating systems concepts: FCB is

10) _____IOCS is _____

11) Throughput in case of multiprogramming is Number of programs processed by it per unit time _.

12) _____is process of modifying the addresses used in the address sensitive

13) A program is a Passive entity , whereas a process is a Active entity.

14) Mutex is a _Binary__Semaphore.

15) _____ is the coincidence of high paging traffic and low CPU utilization.

16) FCFS stands for __First Come First Served__.

17) The Scheduling policy in case of a batch processing system is

18) _____.

19) Multiprogramming degenerates to _____ system if there is no proper mix of CPU and I/O bound jobs.

20) DMA stands for _ direct memory access __

21) Protection of memory is ensured using _____ and _____.

22) _____ is forceful deallocation of a resource.

23) SPOOLING stands for simultaneous peripheral operations on-line

24) A _____ operating system is an operating system which requires a timely response from a computer system.

25) _____ is a program in execution.

26) DOS is an example of _____ user system.

27) Unix is an example of _____ user system.

28) Unix uses _____ scheduling policy .

29) _____ and _____ are the goals of an operating system.

30) _____ is a distributed operating system.

31) The _____ determines which process is to be executed next.

32) PSW stands for Pogram Status Word

33) Mutex is an acronym for Abbrevations

34) A tape is a Magnetic device.

35) Single system image is obtained in case of _____

36) Turnaround Time refers to _____.

37) Short-term Scheduler or CPU-Scheduler scheduler selects the process that is ready to execute to CPU.
38) _____ is an example of Distributed operating system.

39) Round Robin is an example of timesharing scheduling policy.

40) _____is an example of shareable resource and _____ is an example for nonshareable resource.

41) _____ and _____ are the popular page replacement algorithms.

42) Unix is a _____, _____, and _____ operating system.

43) Single system image is obtained in case of _____ 44) Turn around Time refers to _____.

45) Short-term Scheduler or CPU-Scheduler scheduler selects the process that is ready to execute to CPU.
46) Banker's algorithm is an example of _ Deadlock___ avoidance.
47) _____ and _____ are the popular page replacement algorithms.

48) A file is anything held on _____ storage.

49) Compaction is done when you have _____ fragmentation.

50) _____ is when more time is spent in paging than in actually running programs.

51) A thread is a Lightweight process.

52) The process of loading the OS into main memory is done by the _____.

53) The motivations behind networks are _____, _____, _____ & _____.
54) NRU stands for _____ and LRU stands forLeast Recently used .

55) SPOOLING stands for simultaneous peripheral operations on-line

56) Thrashing is the coincidence of high paging traffic and low CPU utilization.

57) _____ is a path under execution.

58) The OS maintains information about each process in a record called _____ .

59) _____ is a relation between number of page faults and number of page frames allocated to a process.

60) _____is the implementation method in case of MS-DOS for non-contiguous allocation.

61) _____ is a mechanism whereby the output of one process is directed into input of another process.

62) The time elapsed for position of Read/Write head under the desired sector is called _____ .

63) _____ , _____ are the two ways to achieve relocation and address translation.

64) The CPU utilization is low when the system is _____.

65) A space allocated in units of fixed size is called _____ .

66) A modified page is also called as _____ page.

67) _____is an example of shareable resource and _____ is an example for nonshareable resource.

68) _____ is forceful deallocationof a resource.

69) Unix is an example of _____ user system.

70) The _____ determines which process is to be executed next.

A process can change its state from block state to run state. Is this statement True or False? 1) Differentiate between the CPU bound process and I/O bound process.

2) Can we prevent deadlocks by denying mutual-exclusion condition? Justify your answer.
3) What do you mean by locality of reference?
4) What is a dirty bit? Why is it used?
5) What is the difference between circuit switching and packet switching?
6) Justify the statement :
7) "It is possible to support multiprogramming without using timesharing. However it is impractical to support timesharing without using multiprogramming"
8) "Swapping improves/degrades the efficiency of system utilization".
9) Describe the cause of READYÅ RUNNING transition.
10) What do you mean by "protection" incase of operating systems? How is it implemented?
11) What is Access Control List? Where is it used?
12) What is a deadlock? How does it occur?
13) What do you mean by scalability?
14) What is a capability list? Where is it used?
15) Comment on the statement:
16) "Interactive processes should have low/high priority"
17) Name secondary storage devices and explain where they are typically used.
18) Which type of scheduler controls the degree of multiprogramming?
19) What is a race condition?
20) Which condition(s) is/are very necessary for a deadlock. Justify your answer.
21) What do you mean by a "kernel"?
22) What do you mean by the "context" of a process?

23) Give one difference between a .COM file and .EXE file in DOS.
24) Name the necessary conditions for a deadlock.
25) What is a critical section?
26) What is IOCS? What are it functions?
27) Explain advantages of distributed operating systems:
28) Name different scheduling policies and explain.
29) Differentiate between the logical address space and physical address space.
30) Explain in brief what you mean by: 1.Multiprogramming 2.Multiprocessing.
31) Name the five typical file operations.
32) Draw a block diagram showing the process transitions.
33) Can we prevent deadlocks by denying mutual-exclusion condition? Justify your answer.
34) How many different types of files are possible on UNIX operating system ?
35) Name them.
36) What is demand paging?
37) Explain Distributed processing with the help of examples.
38) Differentiate between contiguous and non-contiguous memory allocation.
39) What Is deadlock? Give an example.

Explain the following:

1) Semaphores
2) Disk caching
3) Working set
4) Locality of reference
5) DMA
6) Non-preemptive OS

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