



## MCQ- Operating System - WITH Answers

Mathematics AS level (Padmashree Dr. D.Y. Patil Vidyapith)

## MCQ's

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Name of Subject: OPERATING SYSTEM

Year: TE

Branch: IT

Q. No	Descriptive Question	Choice	Unit No	Difficulty Level (Easy /Medium/ Hard)	Blooms Taxonomy Level
01	These are memory devices which can be used to read as well as write (store the data or program).	1) <b>RAM</b> 2) ROM 3) PROM 4) EEPROM	01	Easy	2
02	_____ considered to be fastest as compared to Primary Memory.	1) Secondary memory 2) <b>Cache Memory</b> 3) Internal Cache 4) CPU registers.	01	Easy	2
03	It is much slower in speed compared to the internal or the primary memory devices.	1) Internal Cache 2) External Cache 3) CPU Registers 4) <b>Secondary Memory</b>	01	Easy	2
04	_____ Points to the instruction that needs be fetched from the memory. It is incremented to point to the next instruction every time.	1) IT 2) MAR 3) <b>PC</b> 4) MBR	01	Easy	2
05	_____ holds the address of the instruction or data which is to be executed.	1) IT 2) MAR 3) <b>PC</b> 4) MBR	01	Easy	2
06	Editors are a part of _____.	1) <b>Application Programs</b> 2) System Programs 3) Operating System 4) Compilers	01	Medium	2
07	Object codes generated by a compiler are collected by _____ and combines them into a single executable program and that can be loaded into main memory	1) Loader 2) Assembler 3) <b>Linker</b> 4) Interpreters	01	Medium	2

08	_____ is a system program that transforms high level language into a binary form known as object code.	1) Loader 2) Assembler <b>3) Compilers</b> 4) Interpreters	01	Medium	2
09	_____ is a system program that transforms assembly level language (mnemonics) into object code.	1) Loader <b>2) Assembler</b> 3) Compilers 4) Interpreters	01	Medium	2
10	A stack pointer is _____	<b>1) Register in the microprocessor that indicates the beginning of the stack memory.</b> 2) Register that decodes and executes 16-bit arithmetic expression. 3) First memory location where a subroutine address is stored. 4) A register in which flag bits are stored.	01	Medium	2
11	Interrupts which are initiated by an I/O drive are _____.	1) Internal <b>2) External</b> 3) Software 4) All of above	01	Medium	2
12	Which of the following is a service not supported by the operating system?	a. Protection b. Accounting <b>c. Compilation</b> d. I/O operation	01	Medium	2
13	Pre-emptive scheduling is the strategy of temporarily suspending a running process.	<b>a. before the CPU time slice expires</b> b. to allow starving processes to run c. when it requests I/O d. none of the above	02	Difficult	2
14	Mutual exclusion problem occurs	a. between two disjoint	01	Medium	2

		<p>processes that do not interact</p> <p><b>b. among processes that share resources</b></p> <p>c. among processes that do not use the same resource</p> <p>d. none of the above</p>			
15	Disk scheduling involves deciding	<p>a. which disk should be accessed next</p> <p><b>b. the order in which disk access requests must be serviced</b></p> <p>c. the physical location where files should be accessed in the disk</p> <p>d. none of the above</p>	05	Medium	2
16	Sector interleaving in disks is done by	<p>a. the disk manufacturer</p> <p>b. the disk controller</p> <p><b>c. the operating system</b></p> <p>d. none of the above</p>	05	Medium	2
17	Dirty bit is used to show the	<p>a. page with corrupted data</p> <p>b. wrong page in the memory</p> <p><b>c. page that is modified after being loaded into cache memory</b></p> <p>d. page that is less frequently accessed</p>	04	Medium	2
18	Fence register is used for	a. CPU	04	Medium	2

		protection <b>b. memory protection</b> c. file protection d. all of the above		m	
19	IPC stands for_____	<b>a.</b> Integrated parallel communication <b>b.</b> Intermediate process call <b>c.</b> Internal program call <b>d. Inter process communication</b>	03	Medium	2
20	In the case of_____, message remains in the sender's address space until the receiver executes the corresponding receive.	<b>a. No buffering</b> <b>b.</b> Single message buffering <b>c.</b> Unbounded-capacity buffer <b>d.</b> Finite bound buffer	03	Medium	2
21	Which buffering strategy is used for implementing synchronous communication?	<b>e. Single message buffer</b> <b>f.</b> Unbounded - Capacity buffer <b>g.</b> Finite-Bound Buffer <b>h.</b> All can be used.	03	Medium	2
22	_____refers to the technology in which some space in hard disk is used as an extension of main memory.	<b>a.</b> Cache memory <b>b.</b> Paging <b>c. Virtual memory</b> <b>d.</b> Associative memory	04	Medium	2
23	_____is responsible for allocating primary memory to processes and for assisting the	<b>a.</b> Operating system	04	Easy	2

	programmer in loading and storing the contents of the primary memory.	<b>b. Memory manager</b> <b>c. Database administrator</b> <b>d. RAM</b>			
24	A process may create a new process by executing _____ system call.	<b>a. init</b> <b>b. fork</b> <b>c. create</b> <b>d. new</b>	02	Easy	2
25	_____ approach simplifies debugging and system verification.	<b>a. Kernel</b> <b>b. Layered</b> <b>c. Extended</b> <b>d. Virtual machine</b>	02	Medium	2
26	In MS-DOS, the interfaces and levels of functionality are _____	<b>a. not well separated.</b> <b>b. well separated</b> <b>c. independent</b> <b>d. dependent</b>	01	Difficult	2
27	A process is _____	<b>a. program in main memory</b> <b>b. Program in cache memory</b> <b>c. program in secondary storage</b> <b>d. program in execution</b>	02	Easy	2
28	A sequence of instructions telling the computer what to do is called a _____	<b>a. program</b> <b>b. language</b> <b>c. translator</b> <b>d. package</b>	02	Medium	2
29	A process is _____	<b>a. A program in Execution.</b> <b>b. An asynchronous activity.</b> <b>c. The 'dispatchable' unit.</b> <b>d. All</b>	02	Medium	2
30	A process is already split into pieces, called _____.	<b>a. Tasks</b> <b>b. Program</b> <b>c. Processors</b>	02	Medium	2

		<b>d. Routines</b>			
31	What is a shell ?	a. It is a hardware component <b>b. It is a command interpreter</b> c. It is a part in compiler <b>d. It is a tool in CPU scheduling</b>	01	Easy	1
32	_____ is used to list hidden files located in a folder	a. dir b. ls <b>c. ls -a</b> <b>d. mkdir</b>	01	Easy	1
33	_____ is used to change the permission of file	a. dir b. ls <b>c. chmod</b> <b>d. chaccess</b>	01	Easy	1
34	Which command is used to display the unix version	<b>a. uname -r</b> b. uname -n c. uname -t <b>d. uname -tt</b>	01	Easy	1
35	Which command is used to display the operating system name	a. os b. unix c. kernel <b>d. uname</b>	02	Medium	1
36	Command used to count number of character in a file is	<b>a. wc</b> b. grep c. cut d. paste	02	Medium	1
37	pwd command displays	a. user password b. password file content <b>c. present working directory</b> <b>d. none of the mentioned</b>	01	Easy	1
38	Which of the following commands can be used to change default permissions for files and directories at the time of creation	<b>a. chmod</b> b. chown c. umask <b>d. chgrp</b>	01	Easy	1
39	Which of the following commands is used to create empty file.	<b>a. touch</b> b. grep	01	Easy	1

		c. empty d. find			
40	The permission -rwxr-- represented in octal expression will be	a. 666 b. 777 c. <b>744</b> d. 711	01	Medium	1
41	The command chmod 744 <file> specifies the permission as _____	a. <b>-rwxr-r--</b> b. -rwxr-rw- c. -rwxr-rwx d. -r--r-r--	01	Medium	1
42	If user tries to remove (rm) a readonly file (444 permission), what will happen?	a. The file is removed successfully (and silently) b. <b>The rm command prompts for a confirmation, the command is successful upon confirmation</b> c. The rm command prompts for a confirmation, however the operation fails because of insufficient permissions d. The rm command fails because of insufficient permissions	01	Medium	1
43	_____ Editor is used to display the file in GUI.	a. line b. gedit c. <b>vi</b> d. cd	01	Medium	2
44	_____ is used to create duplicate file	a. <b>ln</b>	01	Medium	2



	which is link to original file	b. link c. mv <b>d. cp</b>		m	
45	_____ Utility to send signals to processes	<b>a. kill</b> b. ps c. ln <b>d. kk</b>	01	Mediu m	2
46	\$ cat data   tail -5 is used for _____	<b>a. display bottom 5 lines</b> b. display complete file c. display top 5 lines <b>d. none of above</b>	01	Mediu m	2
47	\$ cat data   head -5 is used for _____	a. display bottom 5 lines b. display complete file <b>c. display top 5 lines</b> <b>d. none of above</b>	01	Mediu m	2
48	_____ is used to sort numerically, ignores blanks and tabs.	a. sort +n <b>b. sort -n</b> c. sort -f <b>d. sort -r</b>	01	Mediu m	2
49	_____ is used to reverse the order of sort	a. sort +n b. sort -n c. sort -f <b>d. sort -r</b>	01	Mediu m	2
50	_____ is used to display the file pagewise	a. pg b. more c. page <b>d. pg and more</b>	01	Mediu m	2
51	cat file1 file2 >> file3 is used for	a. file1 and file2 contents are written into file3 if file3 is present b. file1 and file2 contents are	01	Mediu m	2

		<p>written into file3 after creating new file file3</p> <p>c. Output of file3 is copied into console</p> <p><b>d. file1 and file2 contents are appended into file3</b></p>			
52	\$ ls a* is used for	<p><b>a. To display all files starting with a</b></p> <p>b. To display all file having two characters having first character as a</p> <p>c. To display file having name a*</p> <p><b>d. none of the above</b></p>	01	Medium	2
53	\$ ls a? is used for	<p><b>a. To display all files starting with a</b></p> <p>b. To display all file having two characters having first character as a</p> <p>c. To display file having name a*</p> <p><b>d. none of the above</b></p>	01	Medium	2
54	After making changes to a file _____ is typed after escape key to save a file	<p>a. _wq</p> <p><b>b. :wq</b></p>	01	Medium	2

		c. q! <b>d. :q!</b>			
55	vi (visual) functions in _____ modes	a. One <b>b. Three</b> c. Five <b>d. Two</b>	01	Medium	2
56	_____ is used for to zero length character sequence to test on character string	<b>a. -z</b> b. -f c. -d <b>d. -n</b>	01	Medium	2
57	_____ is used to check the empty file	a. -z b. -f c. -n <b>d. -s</b>	01	Medium	2
58	While executing the shell script, _____ option will echo each command inside the Shell script before the same is executed.	<b>a. -v</b> b. -h c. -n <b>d. -s</b>	01	Medium	2
59	In _____ Processor must wait for I/O instruction to complete before proceeding	<b>a. Uniprogramming</b> b. Multiprogramming c. Multiprocessing d. All of the above	01	Medium	2
60	Android is _____	a. Uniprogramming OS <b>b. Embedded Systems</b> c. Multiprocessing OS d. Real Time OS	01	Medium	2
61	_____ kernels are fast and efficient	<b>a. Monolithic</b> b. Microkernel c. Layered Kernel d. Nano kernel	01	Medium	2
62	In _____ kernel where the total amount of kernel code, i.e. code executing in the privileged mode of the hardware, is very small.	a. Monolithic b. Microkernel c. Layered Kernel <b>d. Nano kernel</b>	01	Medium	2
63	Modern OS supports	a. Multithreading b. Symmetric	01	Medium	2

		multiprocessing (SMP) c. Object-oriented design <b>d. All of the above</b>			
64	Goal of OS is _____	a. Execute user programs and make solving user problems easier. b. Make the computer system convenient to use. (User interface, API) c. Use the computer hardware in an efficient manner. <b>d. All of the above</b>	01	Medium	2
65	Unix, Windows NT, 2000 are _____	a. Mainframe operating systems b. Real-time operating systems <b>c. Multiprocessor operating systems</b> d. Smart card operating systems	01	Medium	2
66	_____ is used for giving only execute permission to all.	a. chmod 744 <filename> b. chmod 776 <filename> c. chmod 111 <filename> <b>d. chmod 666</b>	01	Medium	2

		<b>&lt;filename&gt;</b>			
67	_____ is used to revoke execute permission	a. chmod -w sample.c b. chmod +x sample.c c. chmod u+x sample.c <b>d. chmod 666 &lt;filename&gt;</b>	01	Medium	2
68	To grant all permission for sample.c we used _____	a. chmod -x <filename> b. chmod +x <filename> <b>c. chmod 777 &lt;filename&gt;</b> d. chmod 666 <filename>	01	Medium	2
69	_____ is used to display complete file	a. cat > filename <b>b. cat filename</b> c. cat << filename	01	Medium	2
70	A _____ is a mechanism, which accepts the output of a command as its input for the next command.	<b>a. Pipe</b> b. Filter c. << d. Redirection Operator	01	Medium	2
71	Which of the following is not an operating system?	a. Windows b. Linux <b>c. Oracle</b> d. DOS	01	Medium	2
72	What is the maximum length of the filename in DOS?	a. 4 b. 5 <b>c. 8</b> d. 12	01	Medium	2
73	What else is a command interpreter called?	a. Prompt b. Kernel <b>c. Shell</b> d. command	01	Medium	2
74	What is the full name of FAT?	<b>a. File Allocation Table</b> b. File Attribute Table c. Font Attribute	01	Medium	2

		d. Format Allocation Table			
75	When does page fault occur?	a. The page is present in memory. b. The deadlock occurs. <b>c. The page does not present in memory.</b> d. The buffering occurs.	02	Difficult	3
76	Banker's algorithm is used?	<b>a. To prevent deadlock</b> b. To deadlock recovery c. To solve the deadlock d. None of these	02	Difficult	3
77	What is the full name of the DSM?	a. Direct system module b. Direct system memory c. Demoralized system memory <b>d. Distributed shared memory</b>	04	Difficult	3
78	What is bootstrapping called?	<b>a. Cold boot</b> b. Cold hot boot c. Cold hot strap d. Hot boot	06	Difficult	3
79	If the page size increases, the internal fragmentation is also?	a. Decreases <b>b. Increases</b> c. Remains constant	02	Medium	2

		d. None of these			
80	Which of the following is a single-user operating system?	a. Windows b. MAC <b>c. Ms-Dos</b> d. None of these	06	Easy	2
81	The size of virtual memory is based on which of the following?	a. CPU b. RAM <b>c. Address bus</b> d. Data bus	04	Medium	2
82	If a page number is not found in the translation lookaside buffer, then it is known as a?	<b>a. Translation Lookaside Buffer miss</b> b. Buffer miss c. Translation Lookaside Buffer hit <b>d. All of the mentioned</b>	04	Medium	2
83	Which of the following operating systems does not support more than one program at a time?	a. Linux b. Windows c. MAC <b>d. DOS</b>	06	Easy	2
84	Which of the following is a condition that causes deadlock?	a. Mutual exclusion b. Hold and wait c. Circular wait d. No preemption <b>e. All of these</b>	03	Medium	2
85	Who provides the interface to access the services of the operating system?	a. API <b>b. System call</b> c. Library <b>d. Assembly instruction</b>	06	Medium	2
86	Where are placed the list of processes that are prepared to be executed and waiting?	a. Job queue <b>b. Ready queue</b> c. Execution queue d. Process queue	02	Medium	2
87	Who among the following can block the running process?	a. Fork b. Read c. Down	02	Medium	2

		<b>d. All of these</b>			
88	Which of the following does not interrupt the running process?	a. Timer interrupt b. Device c. Power failure <b>d. Scheduler process</b>	02	Medium	2
89	Which of the following operating systems do you use for a client-server network?	a. MAC b. Linux c. Windows XP <b>d. Windows 2000</b>	06	Easy	2
90	Bringing a page into memory only when it is needed , this mechanism is called as _____	a. Deadlock b. Page fault c. Dormant Paging <b>d. Demand Paging</b>	04	Easy	2
91	The virtual memory is	a. An extremely large main memory b. Virtual memory reduces the context switching overhead <b>c. An illusion of extremely large main memory</b> d. A type of memory used in super computer	04	Medium	2
92	Which is not the function of the Operating System?	a. Memory management b. Disk management c. Application management <b>d. Virus Protection</b>	06	Easy	2
93	Virtual Memory is	a. Extremely Large Main	04	Medium	2



		memory b. Extremely Large Secondary memory <b>c. An illusion of extremely large main memory</b> d. An illusion of extremely large secondary memory			
94	Swapping is _____	a. Works best with many small partitions b. Allows many programs to use memory simultaneously <b>c. Allows each program in turn to use the memory</b> d. Does not work with overlaying	04	Medium	2
95	What is Thrashing?	<b>a. A high paging activity is called thrashing.</b> b. A high executing activity is called thrashing c. A extremely long process is called thrashing d. A extremely long virtual memory is called thrashing	04	Medium	2
96	Which of the following is NOT a valid deadlock prevention scheme?	a. Release all resources before requesting a new resource b. Number the resources uniquely and	03	Medium	2

		<p>never request a lower numbered resource than the last one requested.</p> <p>c. <b>Never request a resource after releasing any resource</b></p> <p>d. Request and all required resources be allocated before execution.</p>			
97	<p>Let <math>m[0] \dots m[4]</math> be mutexes (binary semaphores) and <math>P[0] \dots P[4]</math> be processes. Suppose each process <math>P[i]</math> executes the following:</p> <pre>wait (m[i]); wait(m[(i+1) mode 4]); ----- release (m[i]); release (m[(i+1)mod 4]);</pre>	<p>a. Thrashing</p> <p><b>b. Deadlock</b></p> <p>c. Starvation, but not deadlock</p> <p>d. None of the above</p>	02	Medium	2
98	<p>Consider a virtual memory system with FIFO page replacement policy. For an arbitrary page access pattern, increasing the number of page frames in main memory will</p>	<p>a. Always decrease the number of page faults</p> <p>b. Always increase the number of page faults</p> <p><b>c. Some times increase the number of page faults</b></p> <p>d. Never affect the number of page faults</p>	04	Difficult	2
99	<p>Which of the following requires a device driver?</p>	<p>a. Register</p> <p>b. Cache</p> <p>c. Main</p>	04	Easy	2

		Memory <b>d. Disk</b>			
10 0	Consider three processes (process id 0, 1, 2 respectively) with compute time bursts 2, 4 and 8 time units. All processes arrive at time zero. Consider the <u>longest remaining time first (LRTF)</u> scheduling algorithm. In LRTF ties are broken by giving priority to the process with the lowest process id. The average turn-around time is:	a. <b>13 Units</b> b. 14 Units c. 15 Units d. 16 Units	03	Difficult	3
10 1	Consider three processes, all arriving at time zero, with total execution time of 10, 20 and 30 units, respectively. Each process spends the first 20% of execution time doing I/O, the next 70% of time doing computation, and the last 10% of time doing I/O again. The operating system uses a shortest remaining compute time first scheduling algorithm and schedules a new process either when the running process gets blocked on I/O or when the running process finishes its compute burst. Assume that all I/O operations can be overlapped as much as possible. For what percentage of time does the CPU remain idle?	a. 0% <b>b. 10.6%</b> c. 30.0% d. 89.4%	03	Difficult	3
10 2	What is the swap space in the disk used for?	a. Saving temporary html pages  <b>b. Saving process data</b>  c. Storing the super-block  d. Storing device drivers	04	Difficult	3
10 3	Increasing the RAM of a computer typically improves performance because:	a. Virtual memory increases  b. Larger RAMs are faster  <b>c. Fewer page faults occur</b>	04	Difficult	3

		d. Fewer segmentation faults occur			
104	A virtual memory system uses First In First Out (FIFO) page replacement policy and allocates a fixed number of frames to a process. Consider the following statements: P: Increasing the number of page frames allocated to a process sometimes increases the page fault rate. Q: Some programs do not exhibit locality of reference. Which one of the following is TRUE?	a. Both P and Q are true, and Q is the reason for P  b. Both P and Q are true, but Q is not the reason for P.  c. P is false, but Q is true  d. Both P and Q are false.	04	Difficult	3
105	A single processor system has three resource types X, Y and Z, which are shared by three processes. There are 5 units of each resource type. Consider the following scenario, where the column alloc denotes the number of units of each resource type allocated to each process, and the column request denotes the number of units of each resource type requested by a process in order to complete execution. Which of these processes will finish LAST? alloc request X Y Z X Y Z P0 1 2 1 1 0 3 P1 2 0 1 0 1 2 P2 2 2 1 1 2 0	a. P0 b. P1 c. P2 d. None of the above, since the system is in a deadlock	02	Difficult	3
106	Consider the following statements about user level threads and kernel level threads. Which one of the following statement is FALSE?	a. Context switch time is longer for kernel level threads than for user level threads.  b. User level threads do	02	Difficult	3

		<p>not need any hardware support.</p> <p>c. Related kernel level threads can be scheduled on different processors in a multi-processor system.</p> <p><b>d. Blocking one kernel level thread blocks all related threads.</b></p>			
107	Consider three CPU-intensive processes, which require 10, 20 and 30 time units and arrive at times 0, 2 and 6, respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.	<p>a. 1</p> <p><b>b. 2</b></p> <p>c. 3</p> <p>d. 4</p>	02	Difficult	3
108	A computer system supports 32-bit virtual addresses as well as 32-bit physical addresses. Since the virtual address space is of the same size as the physical address space, the operating system designers decide to get rid of the virtual memory entirely. Which one of the following is true?	<p>a. Efficient implementation of multi-user support is no longer possible</p> <p>b. The processor cache organization can be made more efficient now</p> <p><b>c. Hardware support for memory management is no</b></p>	02	Difficult	3

		<b>longer needed</b>  d. CPU scheduling can be made more efficient now																		
109	An operating system uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider the arrival times and execution times for the following processes: <table><tr><td>Process</td><td>Execution time</td><td>Arrival time</td></tr><tr><td>P1</td><td>20</td><td>0</td></tr><tr><td>P2</td><td>25</td><td>15</td></tr><tr><td>P3</td><td>10</td><td>30</td></tr><tr><td>P4</td><td>15</td><td>45</td></tr></table>	Process	Execution time	Arrival time	P1	20	0	P2	25	15	P3	10	30	P4	15	45	a. 5 <b>b. 15</b> c. 40 d. 55	02	Difficult	3
Process	Execution time	Arrival time																		
P1	20	0																		
P2	25	15																		
P3	10	30																		
P4	15	45																		
110	A process executes the following code <pre>for (i = 0; i &lt; n; i++) fork();</pre>	a. n <b>b. 2^n - 1</b> c. 2^n d. 2^(n+1) - 1;	02	Difficult	3															
111	Which of the following is NOT true of deadlock prevention and deadlock avoidance schemes?	a. <b>In deadlock prevention, the request for resources is always granted if the resulting state is safe</b>  b. In deadlock avoidance, the request for resources is always granted if the result state is safe  c. Deadlock	03	Difficult	3															

		<p>avoidance is less restrictive than deadlock prevention</p> <p>d. Deadlock avoidance requires knowledge of resource requirements a priori</p>			
11 2	<p>A processor uses 36 bit physical addresses and 32 bit virtual addresses, with a page frame size of 4 Kbytes. Each page table entry is of size 4 bytes. A three level page table is used for virtual to physical address translation, where the virtual address is used as follows</p> <p><b>Bits 30-31 are used to index into the first level page table</b></p> <p><b>Bits 21-29 are used to index into the second level page table</b></p> <p><b>Bits 12-20 are used to index into the third level page table, and</b></p> <p><b>Bits 0-11 are used as offset within the page</b></p> <p>The number of bits required for addressing the next level page table (or page frame) in the page table entry of the first, second and third level page tables are respectively</p>	<p>a. 20, 20 and 20</p> <p>b. 24, 24 and 24</p> <p>c. 24, 24 and 20</p> <p>d. <b>25, 25 and 24</b></p>	03	Difficult	3
11 3	<p>A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because</p>	<p>a. It reduces the memory access time to read or write a memory location.</p> <p>b. <b>It helps to reduce the size of page table needed to implement the virtual address space of a process.</b></p>	04	Difficult	3

		<p>c. It is required by the translation lookaside buffer.</p> <p>d. It helps to reduce the number of page faults in page replacement algorithms.</p>			
11 4	In which one of the following page replacement policies, Belady's anomaly may occur?	<p>a. <b>FIFO</b></p> <p>b. Optimal</p> <p>c. LRU</p> <p>d. MRU</p>	04	Difficult	3
11 5	The essential content(s) in each entry of a page table is / are	<p>a. Virtual page number</p> <p>b. <b>Page frame number</b></p> <p>c. Both virtual page number and page frame number</p> <p>d. Access right information</p>	04	Difficult	3
11 6	Consider a disk system with 100 cylinders. The requests to access the cylinders occur in following sequence: 4, 34, 10, 7, 19, 73, 2, 15, 6, 20 Assuming that the head is currently at cylinder 50, what is the time taken to satisfy all requests if it takes 1ms to move from one cylinder to adjacent one and shortest seek time first policy is used?	<p>a. 95 ms</p> <p>b. <b>119 ms</b></p> <p>c. 233 ms</p> <p>d. 276 ms</p>	05	Difficult	3
11 7	A system uses FIFO policy for page replacement. It has 4 page frames with no pages loaded to begin with. The system first accesses 100 distinct pages in some order and then access the same 100 pages but now	<p>a. <b>196</b></p> <p>b. 192</p> <p>c. 197</p> <p>d. 195</p>	04	Difficult	3



	in the reverse order. How many page faults will occur?				
118	Which of the following statements are true? I. Shortest remaining time first scheduling may cause starvation II. Preemptive scheduling may cause starvation III. Round robin is better than FCFS in terms of response time	a. I only b. I and II only c. II and III Only <b>d. I, II and III</b>	03	Difficult	3
119	The data blocks of a very large file in the Unix file system are allocated using	a. contiguous allocation  b. linked allocation  c. indexed allocation  <b>d. an extension of indexed allocation</b>	05	Difficult	3
120	A thread is usually defined as a 'light weight process' because an operating system (OS) maintains smaller data structures for a thread than for a process. In relation to this, which of the followings is TRUE?	a. On per-thread basis, the OS maintains only CPU register state  b. The OS does not maintain a separate stack for each thread  <b>c. On per-thread basis, the OS does not maintain virtual memory state</b>  <b>d. On per thread basis, the OS maintains only</b>	02	Difficult	3

		scheduling and accounting information.															
12 1	<p>Consider the following table of arrival time and burst time for three processes P0, P1 and P2.</p> <table><tr><th>Process</th><th>Arrival time</th><th>Burst Time</th></tr><tr><td>P0</td><td>0 ms</td><td>9 ms</td></tr><tr><td>P1</td><td>1 ms</td><td>4 ms</td></tr><tr><td>P2</td><td>2 ms</td><td>9 ms</td></tr></table> <p>The pre-emptive shortest job first scheduling algorithm is used. Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?</p>	Process	Arrival time	Burst Time	P0	0 ms	9 ms	P1	1 ms	4 ms	P2	2 ms	9 ms	a. <b>5.0 ms</b> b. 4.33 ms c. 6.33 ms d. 7.33 ms	02	Difficult	3
Process	Arrival time	Burst Time															
P0	0 ms	9 ms															
P1	1 ms	4 ms															
P2	2 ms	9 ms															
12 2	<p>A process executes the code</p> <pre>fork ();  fork ();  fork ();</pre>	a. 3 b. 4 c. <b>7</b> d. 8	02	Difficult	3												
12 3	<p>Consider the 3 processes, P1, P2 and P3 shown in the table</p> <table><tr><th>Process</th><th>Arrival time</th><th>Time unit required</th></tr><tr><td>P1</td><td>0</td><td>5</td></tr><tr><td>P2</td><td>1</td><td>7</td></tr><tr><td>P3</td><td>3</td><td>4</td></tr></table>	Process	Arrival time	Time unit required	P1	0	5	P2	1	7	P3	3	4	a. FCFS: P1, P2, P3 RR2: P1, P2, P3 b. FCFS: P1, P3, P2 RR2: P1, P3, P2 c. <b>FCFS: P1, P2, P3 RR2: P1, P3, P2</b> d. FCFS: P1, P3, P2 RR2: P1, P2, P3	02	Difficult	3
Process	Arrival time	Time unit required															
P1	0	5															
P2	1	7															
P3	3	4															
12 4	<p>Consider the virtual page reference string 1, 2, 3, 2, 4, 1, 3, 2, 4, 1 On a demand paged virtual memory system running on a computer system that main memory size of 3 pages frames which are initially empty. Let LRU, FIFO and OPTIMAL denote the number of page faults under the corresponding page replacements policy. Then</p>	a. OPTIMAL < LRU < FIFO b. <b>OPTIMAL &lt; FIFO &lt; LRU</b> c. OPTIMAL = LRU d. OPTIMAL = FIFO	02	Difficult	3												
12 5	<p>Consider the following statements with respect to user-level threads and kernel supported threads</p> <p>i. context switch is faster with kernel-supported threads</p> <p>ii. for user-level threads, a system call can block the entire process</p> <p>iii. Kernel supported threads can be scheduled</p>	a. <b>(ii), (iii) and (iv) only</b>  b. (ii) and (iii) only	02	Difficult	3												

	independently iv. User level threads are transparent to the kernel Which of the above statements are true?	c. (i) and (iii) only  d. (i) and (ii) only			
12 6	The minimum number of page frames that must be allocated to a running process in a virtual memory environment is determined by	a. <b>the instruction set architecture</b>  b. page size  c. physical memory size  d. number of processes in memory	02	Difficult	3
12 7	Which of the following need not necessarily be saved on a context switch between processes?	a. General purpose registers  b. <b>Translation look-aside buffer</b>  c. Program counter  d. All of the above	02	Difficult	3
12 8	Where does the swap space reside*?	a. RAM  b. <b>Disk</b>  c. ROM  d. On-chip cache	04	Difficult	3
12 9	Which of the following scheduling algorithms is non-preemptive?	a. Round Robin  b. <b>First-In First-Out</b>  c. Multilevel Queue	02	Easy	2

		Scheduling  d. Multilevel Queue Scheduling with Feedback			
130	Which of the following statements is false?	a. Virtual memory implements the translation of a program's address space into physical memory address space  b. Virtual memory allows each program to exceed the size of the primary memory  c. Virtual memory increases the degree of multiprogramming  <b>d. Virtual memory reduces the context switching overhead</b>	04	Difficult	3
131	Consider a set of $n$ tasks with known runtimes $r_1, r_2, \dots, r_n$ to be run on a uniprocessor machine. Which of the following processor scheduling algorithms will result in the maximum throughput?	a. Round-Robin  <b>b. Shortest-Job-First</b>	02	Difficult	3

		c. Highest-Response-Ratio-Next  d. First-Come-First-Served			
13 2	Which of the following is NOT a valid deadlock prevention scheme?	a. Release all resources before requesting a new resource  b. Number the resources uniquely and never request a lower numbered resource than the last one requested.  c. <b>Never request a resource after releasing any resource</b>  d. Request and all required resources be allocated before execution.	03	Difficult	3
13 3	Let $m[0] \dots m[4]$ be mutexes (binary semaphores) and $P[0] \dots P[4]$ be processes. Suppose each process $P[i]$ executes the following: wait ( $m[i]$ ); wait( $m[(i+1) \bmod 4]$ ); ----- release ( $m[i]$ ); release ( $m[(i+1) \bmod 4]$ );	a. Thrashing  <b>b. Deadlock</b>  c. Starvation, but not deadlock	03	Difficult	3

		d. None of the above			
134	Which of the following is major part of time taken when accessing data on the disk?	a. Settle time b. Rotational latency <b>c. Seek time</b> d. Waiting time	05	Difficult	3
135	First-in-First-Out (FIFO) scheduling is	<b>a. Non Preemptive Scheduling</b> b. Preemptive Scheduling c. Fair Share Scheduling d. Deadline Scheduling	02	Medium	3
136	The memory which allocates space for DOS and application is called	a. Expanded memory b. Cache memory c. Virtual memory <b>d. Conventional memory</b>	01	Medium	3
137	The Banker's algorithm is used	a. to rectify deadlock b. to detect deadlock <b>c. to prevent deadlock</b> d. to solve deadlock	02	Medium	3
138	All of the following are TRUE regarding virtual memory EXCEPT	<b>a. Any amount of RAM can be allocated to virtual memory</b> b. The setting for the amount of hard disk drive space to allocate virtual memory can be manually change c. This	04	Difficult	3

		temporary storage is called the swap file or page file d. Virtual memory is the physical space o the hard drive			
139	What is dispatch latency?	<p><b>a. The time taken by the dispatcher to stop one process and start another</b></p> <p>b. The time taken by the processor to write a file into disk</p> <p>c. The whole time taken by all processor</p> <p>d. None of Above</p>	02	Difficult	3
140	A page fault occurs when	<p>a. the Deadlock happens</p> <p>b. the Segmentation starts</p> <p>c. the page is found in the memory</p> <p><b>d. the page is not found in the memory</b></p>	04	Difficult	3
141	The category of operating system that you most likely have running on your PDA computer is a _____ Operating system	<p>a. Real time</p> <p><b>b. Single user, single task</b></p> <p>c. Single user, multitask</p> <p>d. Multiuser, multitask</p>	01	Easy	2
142	Page stealing	<p>a. Is a sign of an efficient system</p> <p><b>b. Is taking page frame from other</b></p>	04	Difficult	2

		<b>working sets</b> c. Should be the turning goal d. Is taking layer disk space for page in page out			
143	A utility that can be used to minimize the number of fragmented files and enhance the speed	a. Disk space <b>b. Defrag</b> c. Scandisk d. Double space	04	Difficult	2
144	The file system "NTFS" stands for	a. New Type File System b. Never Terminated File System <b>c. New Technology File System</b> d. Non Terminated File System	01	Easy	2
145	Copying a process from memory to disk to allow space for other processes is Called	<b>a. Swapping</b> b. Deadlock c. Demand Paging d. Page Fault	02	Easy	2
146	The question mark (?) indicates in file searching	<b>a. A single character</b> b. A group of character c. Questions d. None of above	06	Easy	2
147	What is the method of handling deadlocks?	a. Use a protocol to ensure that the system will never enter a deadlock state. b. Allow the system to enter the deadlock state and then recover. c. Pretend that deadlocks never occur in the system. <b>d. All of the</b>	03	Medium	2



		<b>Above</b>			
148	The ability of an operating system to control the activities of multiple program at the same time is called	<b>a. Multitasking</b> b. Multiprocessing c. Multioperating d. Multipaging	01	Easy	2
149	_____ is a unique tag, usually a number identifies the file within the file system	<b>a. File identifier</b> b. File name c. File type d. None of the mentioned	05	Easy	2
150	To create a file _____	a. allocate the space in file system b. make an entry for new file in directory <b>c. allocate the space in file system &amp; make an entry for new file in directory</b> d. none of the mentioned	05	Medium	2
151	By using the specific system call, we can _____	a. open the file b. read the file c. write into the file <b>d. all of the mentioned</b>	05	Medium	2
152	Which one of the following explains the sequential file access method?	a. random access according to the given byte number <b>b. read bytes one at a time, in order</b> c. read/write sequentially by record d. read/write	05	Medium	2

		randomly by record			
15 3	When will file system fragmentation occur?	<b>a. unused space or single file are not contiguous</b> b. used space is not contiguous c. unused space is non-contiguous d. multiple files are non-contiguous	05	Medium	2
15 4	A _____ is the basic element of data where individual field contains a single value, such as an employee's last name, a data or the value of the sensor reading.	<b>a. field</b> b. record c. file d. database	05	Medium	2
15 5	A _____ is collection of related fields that can be treated as a unit by some application program.	a. field <b>b. record</b> c. file d. database	05	Medium	2
15 6	_____ communicate directly with peripheral devices or their controllers or channels.	<b>a. Device drivers</b> b. Physical I/O c. Basic I/O supervisor d. Logical I/O	05	Medium	2
15 7	The _____ is responsible for all file I/O initiation and termination.	a. Device drivers b. Physical I/O <b>c. Basic I/O supervisor</b> d. Logical I/O	05	Medium	2
15 8	In the _____ file organization, data are collected in the order in which they arrive where each record consists of one burst of data.	<b>a. pile</b> b. sequential c. indexed	05	Medium	2

		sequential			
		d. indexed			
159	In _____ file organization, a fixed format is used for records where all records are of the same length, consisting of the same number of fixed length fields in a particular order.	a. pile <b>b. sequential</b> c. indexed sequential d. indexed	05	Medium	2
160	The _____ maintains the key characteristic of the sequential file: Records are organized in sequence based on a key field.	a. pile b. sequential <b>c. indexed sequential</b> d. indexed	05	Medium	2
161	The retains one limitation of the sequential file: effective processing is limited to that which is based on a single field of the file.	a. pile b. sequential <b>c. indexed sequential</b> d. indexed	05	Medium	2
162	In free space management, _____ method has negligible space overhead because there is no need for a disk allocation table, merely for a pointer to the beginning of the chain and the length of the first portion.	a. Bit tables <b>b. Chained Free Portions</b> c. Indexing d. Free Block List	05	Medium	2
163	_____ is a pre-allocation strategy, using variable size portions where the file allocation table needs just a single entry for each file, showing the starting block and the length of the file.	a. Chained allocation b. Indexed allocation <b>c. Contiguous allocation</b> d. Variable	05	Medium	2

		allocation			
16 4	Typically, _____ is on an individual block basis where each block contains a pointer to the next block in the chain.	<b>a. Chained allocation</b>  b. Indexed allocation  c. Contiguous allocation  d. Variable allocation	05	Medium	2
16 5	_____ are often used where very rapid access is required, where fixed length records are used, and where records are always accessed one at a time.	a. Indexed files  <b>b. Direct files</b>  c. Sequential files  d. Indexed Sequential files	05	Medium	2
16 6	_____ are small fixed portions which provide greater flexibility which may require large tables or complex structures for their allocation.	<b>a. Blocks</b>  b. Columns  c. Segments  d. Partitions	05	Medium	2
16 7	Disk scheduling includes deciding	a. which should be accessed next  <b>b. order in which disk access requests must be serviced</b>  c. the physical location of the file  d. the logical location of the file	05	Medium	2
16 8	In which type of allocation method each file occupy a set of contiguous block on the disk?	<b>a. contiguous allocation</b>	05	Medium	2

		b. dynamic-storage allocation c. linked allocation d. indexed allocation			
169	If the block of free-space list is free then bit will	a. <b>1</b> b. 0 c. Any of 0 or 1 d. None of the mentioned	05	Easy	2
170	Data cannot be written to secondary storage unless written within a _____	a. <b>File</b> b. Swap space c. Directory d. Text format	05	Easy	2
171	File attributes consist of :	a. Name b. Type c. Identifier d. All of above	05	Easy	2
172	The information about all files is kept in :	a. swap space b. operating system c. <b>separate directory structure</b>	05	Medium	2
173	A file is a/an _____ data type.	a. <b>Abstract</b> b. Primitive c. Public d. Private	05	Medium	2
174	In _____ writes, the data is stored in the cache.	a. Asynchronous b. Regular c. <b>Synchronous</b> d. Irregular	05	Easy	2
175	What is raw disk?	a. <b>disk without file system</b> b. empty disk c. disk lacking logical file	05	Easy	2

		d. system disk having file system			
176	What is the real disadvantage of a linear list of directory entries?	a. size of the linear list in memory  <b>b. linear search to find a file</b>  c. it is not reliable  d. All of the above	05	Easy	2
177	In Space Allocation, Which of the following ways are correct to allocate disk space to files?	a. Contiguous Allocation  b. Linked Allocation  c. Indexed Allocation  <b>d. All of the above</b>	05	Medium	2
178	What is true about Ordinary files?	<b>a. These are the files that contain user information</b> .  b. These files contain list of file names and other information related to these files.  c. These files represent physical device like disks, terminals,	05	Medium	2

		printers, networks, tape drive etc.			
		d. All of the above			
179	In _____, A single contiguous block of space is allocated to a file at the time of its creation	a. <b>Contiguous allocation</b> b. Linked allocation c. Indexed allocation	05	Medium	2
180	In _____, Each file is a linked list of disk blocks: blocks may be scattered anywhere on the disk.	a. Contiguous allocation b. <b>Linked allocation</b> c. Indexed allocation	05	Medium	2
181	_____ brings all pointers together into the index block.	a. Contiguous allocation b. Linked allocation c. <b>Indexed allocation</b>	05	Medium	2
182	_____ includes Dynamic access without external fragmentation, but have overhead of index block.	a. Contiguous allocation b. Linked allocation c. <b>Indexed allocation</b>	05	Medium	2
183	_____ Bypasses CPU to transfer data directly between I/O device and memory	a. <b>DMA</b> b. Interrupt c. Polling	05	Easy	2
184	Time to place the read/write head to the cylinder containing the desired sector is known as _____.	a. <b>Seek Time</b> b. Access Time c. Rotational Latency	05	Medium	2
185	Time required for the disk to rotate the desired sector under the disk head is known as _____.	a. Seek Time b. Access Time c. <b>Rotational Latency</b>	05	Medium	2
186	_____ Perform operations in the same order as in the disk queue.	a. <b>First Come First Serve</b> b. Shortest Seek Time	05	Easy	2

		First c. SCAN Algorithm d. LOOK Algorithm			
187	_____ Service the request having minimum distance/seek time from the current head position.	a. First Come First Serve <b>b. Shortest Seek Time First</b> c. SCAN Algorithm d. LOOK Algorithm	05	Easy	2
188	In _____, After servicing a request, service the next nearest request in the disk queue, without considering the direction.	a. First Come First Serve <b>b. Shortest Seek Time First</b> c. SCAN Algorithm d. LOOK Algorithm	05	Easy	2
189	_____ is also known as Elevator Algorithm	a. First Come First Serve b. Shortest Seek Time First <b>c. SCAN Algorithm</b> d. LOOK Algorithm	05	Easy	2
190	In _____, The disk arm starts at one end and moves the towards the end of the disk, servicing requests until it gets to the other end of the disk.	a. First Come First Serve b. Shortest Seek Time First <b>c. SCAN Algorithm</b> d. None of the Above	05	Easy	2
191	In _____, At other end, the head returns immediately to the start of the disk.	a. First Come First Serve b. Shortest Seek Time First c. SCAN	05	Easy	2



		Algorithm <b>d. C-SCAN Algorithm</b>			
19 2	The _____ function is used to create a new shared memory segment or to locate an existing one based on a key.	a. shmdt <b>b. shmget</b> c. shmat d. shmct	05	Easy	2
19 3	The _____ function is used to attach a shared memory segment to a process, so that the memory contents can be accessed.	a. shmdt b. shmget <b>c. shmat</b> d. shmct-	05	Easy	2
19 4	The _____ function is used to detach a shared memory segment from a process.	<b>a. shmdt</b> b. shmget c. shmat d. shmct	05	Easy	2
19 5	shmget function returns the _____ of the shared memory segment if successful	a. pid <b>b. identifier</b> c. 0 d. -1	05	Mediu m	2
19 6	Shmget function returns _____ if it is unsuccessful.	a. pid b. identifier c. 0 <b>d. -1</b>	05	Mediu m	2
19 7	shmat function returns the _____ of the attached segment	<b>a. address</b> b. identifier c. 0 d. -1	05	Mediu m	2
19 8	Shmat function returns _____ if it is unsuccessful.	e. pid f. identifier g. 0 <b>h. -1</b>	05	Mediu m	2
19 9	_____ is the common, natural and Performance depends on the number and types of requests.	<b>a. First Come First Serve</b> b. Shortest Seek Time First c. SCAN Algorithm d. LOOK Algorithm	05	Easy	2
20 0	_____ Level contains block interleaved parity	a. RAID 0 b. RAID 1 c. RAID 2 <b>d. RAID 4</b>	05	Mediu m	2
20 1	_____ Level contains bit interleaved parity	a. RAID 0 b. RAID 1 c. RAID 2	05	Mediu m	2

		d. <b>RAID 3</b>			
20 2	_____ Level contains block interleaved distributed parity	a. <b>RAID 5</b> b. RAID 1 c. RAID 2 d. RAID 3	05	Mediu m	2
20 3	_____ level includes non redundant striping	a. <b>RAID 0</b> b. RAID 1 c. RAID 2 d. RAID 4	05	Mediu m	2
20 4	_____ level includes mirrored disks	a. RAID 0 b. <b>RAID 1</b> c. RAID 2 d. RAID 4	05	Mediu m	2
20 5	Instead of writing data one bit at a time _____ writes data in strips of uniform sizes across all of the drives	a. RAID 0 b. RAID 1 c. RAID 2 d. <b>RAID 4</b>	05	Mediu m	2
20 6	In _____ level Parity bits are distributed across different physical disks. In the event of a single drive failure, data is pieced together using the parity information stored on the other drives.	a. <b>RAID 5</b> b. RAID 1 c. RAID 2 d. RAID 3	05	Mediu m	2
20 7	Dual Redundancy is used in _____ which performs high availability of data.	a. RAID 0 b. RAID 2 c. RAID 5 d. <b>RAID 6</b>	05	Mediu m	2
20 8	In _____, Read and Write performance in high in RAID 0 but zero fault tolerance.	a. <b>RAID 0</b> b. RAID 1 c. RAID 2 d. RAID 4	05	Mediu m	2
20 9	_____ is the fixed length block of main memory	a. <b>FRAME</b> b. PAGE c. SEGMENT	04	Easy	2
21 0	_____ is the fixed length block of secondary memory	a. FRAME b. <b>PAGE</b> c. SEGMENT	04	Easy	2
21 1	_____ is the variable length block of secondary memory	a. FRAME b. PAGE c. <b>SEGMENT</b>	04	Easy	2
21 2	_____ chooses the block that is closest in size to the request	a. <b>BEST FIT</b> b. FIRST FIT c. NEXT FIT	04	Easy	2
21 3	_____ Scans memory form the beginning and chooses the first available block that is large enough	a. BEST FIT b. <b>FIRST FIT</b> c. NEXT FIT	04	Easy	2
21	_____ Scans memory from the	a. BEST FIT	04	Easy	2

4	location of the last placement	b. FIRST FIT c. NEXT FIT			
21 5	_____ is giving worst performance and more compaction is required.	a. BEST FIT b. FIRST FIT c. NEXT FIT	04	Easy	2
21 6	_____ is Fastest and may have many process loaded in the front end of memory that must be searched over when trying to find a free block	a. BEST FIT b. FIRST FIT c. NEXT FIT	04	Easy	2
21 7	_____ scans memory from the location of the last placement and more often allocate a block of memory at the end of memory where the largest block is found	a. BEST FIT b. FIRST FIT c. NEXT FIT	04	Easy	2
21 8	The chunks of a process are called ____ and the chunks of memory are called _____	a. Pages, frames b. Frames, segment c. Frames, pages	04	Easy	2
21 9	In Paging, _____ bit is needed to indicate whether the corresponding page is present in main memory or not.	a. P b. M c. C	04	Medium	2
22 0	In Paging, _____ bit indicates whether the contents of the corresponding page	a. P b. M c. C	04	Medium	2
22 1	_____ function waits for a child to terminate.	a. wait b. waitpid c. stoppid d. exit	06	Medium	2
22 2	_____ command is used to change a file's protection bits	a. chmod b. change c. chaccess d. chgrp	06	Medium	2
22 3	_____ utility is used to list the modules.	a. lsmod b. insmod c. listmod d. rmmod	06	Medium	2
22 4	_____ utility is used to display module information	a. lsmod b. insmod c. modinfo d. infomod	06	Medium	2
22 5	_____ utility is used to insert a module.	a. lsmod b. insmod c. listmod d. insertmod	06	Medium	2
22	_____ utility is used to remove a	a. rmmod	06	Medium	2

6	module.	b. insmod c. listmod d. deletemod		m	
22 7	_____ is simply the name of the kernel's formatted print function.	a. printf b. print c. getk <b>d. printk</b>	06	Mediu m	2
22 8	In printk function _____ is used for emergency messages, usually those that precede a crash.	<b>a. KERN_EMERG</b> b. KERN_ALERT c. KERN_CRIT d. KERN_WARNING	06	Mediu m	2
22 9	Critical conditions, often related to serious hardware or software failures are warned by _____ messages.	a. KERN_EMERG b. KERN_ALERT <b>c. KERN_CRIT</b> d. KERN_WARNING	06	Mediu m	2
23 0	_____ is used to report error conditions; device drivers often use KERN_ERR to report hardware difficulties.	a. KERN_EMERG b. KERN_ALERT <b>c. KERN_ERR</b> d. KERN_WARNING	06	Mediu m	2
23 1	In the _____ mode, all kernel code executes and able to access all physical resources of the OS	<b>a. Kernel</b> b. User c. Data d. library	06	Mediu m	2
23 2	_____ mode is used whenever any user program executes and does not need kernel code to be executed.	a. Kernel <b>b. User</b> c. Data d. Library	06	Mediu m	2
23 3	Master boot Record (MBR) is a _____ byte sector and it is located in the first sector of the hard disk.	a. 64 <b>b. 512</b> c. 1024 d. 2048	06	Mediu m	2
23 4	_____ performs some system integrity checks	<b>a. BIOS</b> b. MBR c. GRUB d. INIT	06	Mediu m	2

235	_____ searches, loads, and executes the boot loader program.	a. <b>BIOS</b> b. MBR c. GRUB d. INIT	06	Medium	2
236	_____ loads and executes the boot loader	a. BIOS b. <b>MBR</b> c. GRUB d. INIT	06	Medium	2
237	_____ loads the default kernel image as specified in the configuration file.	a. BIOS b. MBR c. <b>GRUB</b> d. INIT	06	Medium	2
238	Once the boot loader program is detected and loaded into the memory, _____ gives the control to it.	a. <b>BIOS</b> b. MBR c. GRUB d. INIT	06	Medium	2
239	_____ is located in the 1st sector of the bootable disk.	a. BIOS b. <b>MBR</b> c. GRUB d. INIT	06	Medium	2
240	_____ creates a new process with its own identity, but that is allowed to share the data structures of its parent	a. DUP b. <b>CLONE</b> c. FORK d. KILL	06	Easy	2
241	_____ creates a new process with its own entirely new process context	a. DUP b. CLONE c. <b>FORK</b> d. KILL	06	Difficult	2
242	_____ monitors the system calls and signals of a specific program.	a. Fork b. <b>strace</b> c. ltrace d. dmesg	06	Difficult	2
243	_____ monitors the library calls and signals of a specific program.	a. Fork b. strace c. <b>ltrace</b> d. dmesg	06	Difficult	2
244	Which directory contains configuration files in Linux?	a. <b>/etc/</b> b. /bin/ c. /dev/ d. /root/	06	Easy	2
245	main() { fork(); fork(); fork(); printf("hello"); }	a. 3 b. 6 c. <b>8</b> d. 9	06	Difficult	3

246	Process which terminates before the parent process exits is known as _____	a. Orphan <b>b. Zombie</b> c. Child	06	Difficult	3
247	What is maximum filename size in Linux in bytes?	a. 32 b. 64 c. 128 <b>d. 255</b>	06	Medium	2
248	Which directory contains device files in Linux?	a. /etc b. /bin <b>c. /dev</b> d. /opt	06	Easy	2
249	_____ is the home directory of root, the superuser.	<b>a. /root</b> b. /opt c. /bin d. /net	06	Easy	2
250	_____ is used to store user commands	a. /opt b. /home c. /usr <b>d. /bin</b>	06	Easy	2
251	Which command is used to add user	a. usernew <b>b. useradd</b> c. newuser d. none of above	06	Easy	2
252	What does the pwd command do?	a. Changes the password <b>b. Shows the current path</b> c. Shows the passwd file d. Shows the information about linux kernel and configuration	06	Easy	2
253	_____ shows the complete list of commands which have been executed in the current session.	a. his <b>b. history</b> c. pwd d. command	06	Easy	2
254	How can the version of linux kernel to be checked.	a. uname – kernel <b>b. uname –r</b> c. uname –k d. uname -f	06	Easy	2
25	Which of the following command delete the	<b>a. dd</b>	06	Easy	2

5	current line in VI editor	b. delete c. DD d. del			
25 6	Which command changes the access permission of file	a. <b>chmod</b> b. access c. chpermission d. usermod	06	Easy	2
25 7	What does du command do?	a. Shows disk usages b. Shows the details of the currently logged in users c. <b>Shows the disk file size</b>	06	Easy	2
25 8	What does wc command do?	a. Displays the file b. Reads the file c. Gives line index d. <b>Display no of lines, words and characters in a file</b>	06	Easy	2
25 9	Which is a not a valid shell	a. Bash b. Tcsh c. Zsh d. <b>Wsch</b>	06	Easy	2
26 0	Which of the following command will show a page wise listing	a. ls /bin   grep b. <b>ls /bin   more</b> c. ls /bin   less d. ls /bin   page	06	Easy	2
26 1	Let $m[0] \dots m[4]$ be mutexes (binary semaphores) and $P[0] \dots P[4]$ be processes. Suppose each process $P[i]$ executes the following:  <div style="background-color: #e0e0e0; padding: 5px; margin: 5px 0;"> wait (<math>m[i]</math>); wait(<math>m[(i+1) \bmod 4]</math>);  -----  release (<math>m[i]</math>); release (<math>m[(i+1) \bmod 4]</math>); </div> This could cause_____	a. Thrashing  b. <b>Deadlock</b>  c. Starvation, but not deadlock  d. None of the above	03	Difficult	3
26	A system contains three programs and each	a. 6	03	Difficult	3

2	requires three tape units for its operation. The minimum number of tape units which the system must have such that deadlocks never arise is _____.	<b>b. 7</b> c. 8 d. 9 e. 12		lt	
26 3	A system has 6 identical resources and N processes competing for them. Each process can request atmost 2 resources. Which one of the following values of N could lead to a deadlock?	a. 1 b. 2 c. 3 <b>d. 4</b>	03	Difficu lt	3
26 4	A counting semaphore was initialized to 10. Then 6 P (wait) operations and 4 V (signal) operations were completed on this semaphore. The resulting value of the semaphore is	a. 0 <b>b. 8</b> c. 10 d. 12	03	Difficu lt	3
26 5	A computer has six tape drives, with n processes competing for them. Each process may need two drives. What is the maximum value of n for the system to be deadlock free?	a. 6 <b>b. 5</b> c. 4 d. 3	04	Difficu lt	3
26 6	An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of units of R such that no deadlocks will ever arise is	a. 3 b. 5 <b>c. 4</b> d. 6	03	Difficu lt	3
26 7	A critical section is a program segment	a. which should run in a certain specified amount of time  <b>b. which avoids deadlocks</b>  c. where shared resources are accessed  d. which must be enclosed by a pair of semaphore operations, P and V	03	Difficu lt	3



268	A solution to the Dining Philosophers Problem which avoids deadlock is:	<div>a. ensure that all philosophers pick up the left fork before the right fork</div> <div>b. ensure that all philosophers pick up the right fork before the left fork</div> <div>c. ensure that one particular philosopher picks up the left fork before the right fork, and that all other philosophers pick up the right fork before the left fork</div> <div>d. None of the above</div>	03	Difficult	3															
269	<div>A system shares 9 tape drives. The current allocation and maximum requirement of tape drives for 4 processes are shown below:</div> <table><thead><tr><th>Process</th><th>Maximum need</th><th>Current allocation</th></tr></thead><tbody><tr><td>P1</td><td>9</td><td>3</td></tr><tr><td>P2</td><td>6</td><td>1</td></tr><tr><td>P3</td><td>5</td><td>3</td></tr><tr><td>P4</td><td>10</td><td>0</td></tr></tbody></table> <div>Which of the following best describes the current state of the system?</div>	Process	Maximum need	Current allocation	P1	9	3	P2	6	1	P3	5	3	P4	10	0	<div>a. Safe, Deadlocked</div> <div>b. Safe, Not Deadlocked</div> <div>c. Not Safe, Deadlocked</div> <div>d. Not Safe, Not Deadlocked</div>	03	Difficult	3
Process	Maximum need	Current allocation																		
P1	9	3																		
P2	6	1																		
P3	5	3																		
P4	10	0																		

270	Which of the following is not true with respect to deadlock prevention and deadlock avoidance schemes ?	<p><b>a. In deadlock prevention, the request for resources is always granted if resulting state is safe</b></p> <p>b. In deadlock avoidance, the request for resources is always granted, if the resulting state is safe</p> <p>c. Deadlock avoidance requires knowledge of resource requirements a priori</p> <p>d. Deadlock prevention is more restrictive than deadlock avoidance</p>	03	Difficult	3
271	What problem is solved by Dijkstra banker's algorithm?	<p>a. Cache coherence</p> <p>b. Mutual exclusion</p> <p>c. Deadlock recovery</p> <p><b>d. Deadlock avoidance</b></p>	03	Difficult	3
272	With single resource, deadlock occurs	a. if there are more than	03	Difficult	3

		<p>two processes competing for that resources</p> <p>b. if there are only two processes competing for that resources</p> <p>c. if there is a single process competing for that resources</p> <p><b>d. none of these</b></p>																												
27 3	What is the minimum number of resources required to ensure that deadlock will never occur, if there are currently three processes P1, P2 and P3 running in a system whose maximum demand for the resources of same type are 3, 4, and 5 respectively.	<p>a. 3</p> <p>b. 7</p> <p>c. 9</p> <p><b>d. 10</b></p>	03	Difficult	3																									
27 4	Which of the following is not a necessary condition for deadlock?	<p>a. Mutual exclusion</p> <p><b>b. Reentrancy</b></p> <p>c. Hold and wait</p> <p>d. No pre-emption</p>	03	Difficult	3																									
27 5	<p>Consider the following process and resource requirement of each process.</p> <table> <tr> <th></th> <th colspan="2">Type 1</th> <th colspan="2">Type 2</th> </tr> <tr> <th>Process</th> <th>Used</th> <th>Max</th> <th>Used</th> <th>Max</th> </tr> <tr> <td>P1</td> <td>1</td> <td>2</td> <td>1</td> <td>3</td> </tr> <tr> <td>P2</td> <td>1</td> <td>3</td> <td>1</td> <td>2</td> </tr> <tr> <td>P3</td> <td>2</td> <td>4</td> <td>1</td> <td>4</td> </tr> </table>		Type 1		Type 2		Process	Used	Max	Used	Max	P1	1	2	1	3	P2	1	3	1	2	P3	2	4	1	4	<p>a. Can go to safe or unsafe state based on sequence</p> <p>b. Safe state</p> <p><b>c. Unsafe state</b></p> <p>d. Deadlock state</p>	03	Difficult	3
	Type 1		Type 2																											
Process	Used	Max	Used	Max																										
P1	1	2	1	3																										
P2	1	3	1	2																										
P3	2	4	1	4																										

27 6	<p>A total of 9 units of a resource type available, and given the safe state shown below, which of the following sequence will be a safe state?</p> <table> <tr> <th>Process</th> <th>Used</th> <th>Max</th> </tr> <tr> <td>P1</td> <td>2</td> <td>7</td> </tr> <tr> <td>P2</td> <td>1</td> <td>6</td> </tr> <tr> <td>P3</td> <td>2</td> <td>5</td> </tr> <tr> <td>P4</td> <td>1</td> <td>4</td> </tr> </table>	Process	Used	Max	P1	2	7	P2	1	6	P3	2	5	P4	1	4	<p>a. (P4, P1, P3, P2)</p> <p>b. (P4, P2, P1, P3)</p> <p>c. (P4, P2, P3, P1)</p> <p><b>d. (P3, P1, P2, P4)</b></p>	03	Difficult	3
Process	Used	Max																		
P1	2	7																		
P2	1	6																		
P3	2	5																		
P4	1	4																		
27 7	Consider a system having "n" resources of same type. These resources are shared by 3 processes, A, B, C. These have peak demands of 3, 4, and 6 respectively. For what value of "n" deadlock won't occur	<p>a. 15</p> <p>b. 9</p> <p>c. 10</p> <p><b>d. 11</b></p>	03	Difficult	3															
27 8	When a process is rolled back as a result of deadlock the difficulty which arises is	<p><b>a. Starvation</b></p> <p>b. System throughput</p> <p>c. Low device utilization</p> <p>d. Cycle stealing</p>	03	Difficult	3															
27 9	In which of the following four necessary conditions for deadlock processes claim exclusive control of the resources they require?	<p>a. no preemption</p> <p><b>b. mutual exclusion</b></p> <p>c. circular wait</p> <p>d. hold and wait</p>	03	Difficult	3															
28 0	Consider a system having m resources of the same type. These resources are shared by 3 processes A, B, C which have peak time demands of 3, 4, 6 respectively. The minimum value of m that ensures deadlock will never occur is	<p><b>a. 11</b></p> <p>b. 12</p> <p>c. 13</p> <p><b>d. 14</b></p>	03	Difficult	3															
28 1	The difference between a named pipe and a regular file in Unix is that	<p>a. Unlike a regular file,</p>	05	Difficult	3															

		<p>named pipe is a special file</p> <p>b. The data in a pipe is transient, unlike the content of a regular file</p> <p>c. <b>Pipes forbid random accessing, while regular files do allow this.</b></p> <p>d. All of the above</p>			
28 2	At a particular time of computation, the value of a counting semaphore is 10. Then 12 P operations and “x” V operations were performed on this semaphore. If the final value of semaphore is 7, x will be:	<p>a. 8</p> <p><b>b. 9</b></p> <p>c. 10</p> <p>d. 11</p>	02	Difficult	3
28 3	What is the name of the technique in which the operating system of a computer executes several programs concurrently by switching back and forth between them?	<p>a. Partitioning</p> <p><b>b. Multi-tasking</b></p> <p>c. Windowing</p> <p>d. Paging</p>	03	Difficult	3
28 4	A task in a blocked state	<p>a. is executable</p> <p>b. is running</p> <p>c. must still be placed in the run queues</p> <p><b>d. is waiting for some temporarily unavailable resources</b></p>	02	Difficult	3

28 5	On a system using non-preemptive scheduling, processes with expected run times of 5, 18, 9 and 12 are in the ready queue. In what order should they be run to minimize wait time?	<b>a.</b> 5, 12, 9, 18 <b>b.</b> <b>5, 9, 12, 18</b> <b>c.</b> 12, 18, 9, 5 <b>d.</b> 9, 12, 18, 5	02	Medium	3
28 6	Which of the following conditions does not hold good for a solution to a critical section problem ?	<b>a.</b> No assumptions may be made about speeds or the number of CPUs. <b>b.</b> No two processes may be simultaneously inside their critical sections. <b>c.</b> <b>Processes running outside its critical section may block other processes.</b> <b>d.</b> Processes do not wait forever to enter its critical section	02	Medium	3
28 7	For switching from a CPU user mode to the supervisor mode following type of interrupt is most appropriate	<b>a.</b> Internal interrupts <b>b.</b> External interrupts <b>c.</b> <b>Software interrupts</b> <b>d.</b> None of the	02	Medium	3

		above			
28 8	Monitor is an Inter-process Communication (IPC) technique which can be described as	<p>a. It is higher level synchronization primitive and is a collection of procedures, variables, and data structures grouped together in a special package.</p> <p>b. It is a non-negative integer which apart from initialization can be acted upon by wait and signal operations.</p> <p>c. It uses two primitives, send and receive which are system calls rather than language constructs.</p> <p>d. It consists of the IPC primitives implemented as system calls to block the process when they are not</p>	02	Medium	3

		allowed to enter critical region to save CPU time.			
28 9	<p>The following C program</p> <pre>main() {     fork() ; fork() ; printf ("yes"); }</pre> <p>If we execute this core segment, how many times the string yes will be printed ?</p>	<p>a. Only once</p> <p>b. 2</p> <p><b>c. 4</b></p> <p>d. 8</p>	02	Medium	3
29 0	With Round-Robin CPU scheduling in a time shared system	<p><b>a. using very large time slices (quantas) degenerates into FirstCome First served (FCFS) algorithm.</b></p> <p>b. using extremely small time slices improves performance</p> <p>c. using very small time slices degenerates into Last-In First-Out (LIFO) algorithm.</p> <p>d. using medium sized times slices leads to shortest Request time First (SRTF)</p>	02	Medium	3



		algorithm			
29 1	What is the name of the operating system that reads and reacts in terms of operating system?	a. Batch system b. Quick response time c. <b>real time system</b> d. Time sharing system	06	Medium	2
29 2	Fork is	a. the creation of a new job b. the dispatching of a task c. increasing the priority of a task d. <b>the creation of a new process</b>	05	Easy	2
29 3	The performance of Round Robin algorithm depends heavily on	a. size of the process b. the I/O bursts of the process c. the CPU bursts of the process d. <b>the size of the time quantum</b>	02	Medium	2
29 4	Dining Philosopher's problem is a:	a. Producer – consumer problem b. <b>Classical</b>	03	Medium	2

		<b>IPC problem</b>  c. Starvation problem  d. Synchronization primitive			
29 5	Consider a set of $n$ tasks with known runtimes $r_1, r_2, \dots, r_n$ to be run on a uniprocessor machine. Which of the following processor scheduling algorithms will result in the maximum throughput?	<b>a. Round Robin</b>  <b>b. Shortest job first</b>  c. Highest response ratio next  d. first come first served	02	Difficult	2
29 6	Round Robin schedule is essentially the pre-emptive version of	<b>a. FIFO</b>  b. Shortest job first  c. Shortest remaining time  d. Longest remaining time	02	Medium	2
29 7	There are three processes in the ready queue. When the currently running process requests for I/O how many process switches take place?	<b>a. 1</b> b. 2 c. 3 d. 4	02	Difficult	3
29 8	Which is the correct definition of a valid process transition in an operating system?	a. Wake up: ready $\rightarrow$ running  <b>b. Dispatch: ready <math>\rightarrow</math> running</b>  c. Block: ready $\rightarrow$ running  d. Timer	02	Medium	2

		runout: ready → running																															
29 9	Consider three CPU-intensive processes, which require 10, 20 and 30 time units and arrive at times 0, 2 and 6, respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.	a. 1 <b>b. 2</b> c. 3 <b>d. 4</b>	02	Medium	3																												
30 0	Process is:	a. A program in high level language kept on disk  b. Contents of main memory  c. A program in execution  d. A job in secondary memory	02	Medium	3																												
30 1	Consider a set of 5 processes whose arrival time, CPU time needed and the priority are given below: <table><tr><th>Process</th><th>Arrival Time</th><th>CPU Time Needed</th><th>Priority</th></tr><tr><td colspan="4">(in ms)</td></tr><tr><td>P1</td><td>0</td><td>10</td><td>5</td></tr><tr><td>P2</td><td>0</td><td>5</td><td>2</td></tr><tr><td>P3</td><td>2</td><td>3</td><td>1</td></tr><tr><td>P4</td><td>5</td><td>20</td><td>4</td></tr><tr><td>P5</td><td>10</td><td>2</td><td>3</td></tr></table> (smaller the number, higher the priority) If the CPU scheduling policy is priority scheduling without preemption, the average waiting time will be	Process	Arrival Time	CPU Time Needed	Priority	(in ms)				P1	0	10	5	P2	0	5	2	P3	2	3	1	P4	5	20	4	P5	10	2	3	a. 12.9 ms b. 11.8 ms <b>c. 10.8 ms</b> d. 9.8 ms	02	Difficult	3
Process	Arrival Time	CPU Time Needed	Priority																														
(in ms)																																	
P1	0	10	5																														
P2	0	5	2																														
P3	2	3	1																														
P4	5	20	4																														
P5	10	2	3																														
30 2	Four jobs to be executed on a single processor system arrive at time 0 in the order A, B, C, D . Their burst CPU time requirements are 4, 1, 8, 1 time units respectively. The completion time of A	a. 10 b. 4 c. 8 <b>d. 9</b>	02	Difficult	03																												

	under round robin scheduling with time slice of one time unit is																
303	<p>Consider the following set of processes, with arrival times and the required CPU-burst times given in milliseconds.</p> <table> <tr> <th>Process</th> <th>Arrival Time</th> <th>Burst Time</th> </tr> <tr> <td>P1</td> <td>0</td> <td>4</td> </tr> <tr> <td>P2</td> <td>2</td> <td>2</td> </tr> <tr> <td>P3</td> <td>3</td> <td>1</td> </tr> </table> <p>What is the sequence in which the processes are completed? Assume round robin scheduling with a time quantum of 2 milliseconds</p>	Process	Arrival Time	Burst Time	P1	0	4	P2	2	2	P3	3	1	<p>a. P1, P2, P3</p> <p><b>b. P2, P1, P3</b></p> <p>c. P3, P2, P1</p> <p>d. P2, P3, P1</p>	02	Difficult	03
Process	Arrival Time	Burst Time															
P1	0	4															
P2	2	2															
P3	3	1															
304	A CPU scheduling algorithm determines an order for the execution of its scheduled processes. Given 'n' processes to be scheduled on one processor, how many possible different schedules are there?	<p>a. N</p> <p>b. N (power) 2</p> <p><b>c. N !</b></p> <p>d. 2 (power) 2</p>	02	Difficult	03												
305	A starvation free job scheduling policy guarantees that no job indefinitely waits for a service. Which of the following job scheduling policies is starvation free?	<p>a. Priority queuing</p> <p>b. Shortest Job First</p> <p>c. Youngest Job First</p> <p><b>d. Round robin</b></p>	02	Difficult	03												
306	The state of a process after it encounters an I/O instruction is	<p>a. Ready</p> <p>b. locked</p> <p><b>c. blocked</b></p> <p>d. idle</p> <p>e. running</p>	02	Easy	2												
307	Which of the following strategy is employed for overcoming the priority inversion problem?	<p><b>a. Temporarily raise the priority of lower priority level process</b></p> <p>b. Have a fixed priority level scheme</p> <p>c. Implement kernel pre-emption scheme</p>	02	Difficult	3												

		d. Allow lower priority process to complete its job															
308	System calls are usually invoked by using :	a. A privileged instruction  b. An indirect jump  c. A software interrupt  d. Polling	06	Difficult	3												
309	A disk drive has 100 cylinders, numbered 0 to 99. Disk requests come to the disk driver for cylinders 12, 26, 24, 4, 42, 8 and 50 in that order. The driver is currently serving a request at cylinder 24. A seek takes 6 msec per cylinder moved. How much seek time is needed for shortest seek time first (SSTF) algorithm?	a. 0.984 s b. 0.396 s c. 0.738 s d. <b>0.42 s</b>	05	Difficult	3												
310	The following table shows the processes in the ready queue and time required for each process for completing its job. <table><thead><tr><th>Process</th><th>Time</th></tr></thead><tbody><tr><td>P1</td><td>10</td></tr><tr><td>P2</td><td>5</td></tr><tr><td>P3</td><td>20</td></tr><tr><td>P4</td><td>8</td></tr><tr><td>P5</td><td>15</td></tr></tbody></table> If round-robin scheduling with 5 ms is used what is the average waiting time of the processes in the queue. (ms)	Process	Time	P1	10	P2	5	P3	20	P4	8	P5	15	a. 27 b. <b>26.2</b> c. 27.5 d. 27.2	02	Medium	3
Process	Time																
P1	10																
P2	5																
P3	20																
P4	8																
P5	15																
311	A critical region	a. <b>is a piece of code which only one process executes at a time</b>  b. is a region prone to deadlock  c. is a piece of code which only a finite number of processes	03	Difficult	3												

		execute			
		d. is found only in windows NT operating system			
31 2	At particular time, the value of a counting semaphore is 10, it will become 7 after: (a) 3 V operations (b) 3 P operations (c) 5 V operations and 2 P operations (d) 2 V operations and 5 P operations Which of the following option is correct?	a. Only (b) b. Only(d) c. Both (b) and (d) d. None of these	03	Medium	3
31 3	At a particular time of computation the value of a counting semaphore is 7. Then 20 P operations and xV operations were completed on this semaphore. If the new value of semaphore is 5 ,x will be	a. 18 b. 22 c. 15 d. 13	03	Medium	3
31 4	There are three processes P <sub>1</sub> , P <sub>2</sub> and P <sub>3</sub> sharing a semaphore for synchronizing a variable. Initial value of semaphore is one. Assume that negative value of semaphore tells us how many processes are waiting in queue. Processes access the semaphore in following order : (a) P <sub>2</sub> needs to access (b) P <sub>1</sub> needs to access (c) P <sub>3</sub> needs to access (d) P <sub>2</sub> exits critical section (e) P <sub>1</sub> exits critical section The final value of semaphore will be :	a. 0 b. 1 c. -1 d. -2	03	Medium	3
31 5	One of the disadvantages of user level threads compared to Kernel level threads is	a. <b>If a user-level thread of a process executes a system call, all threads in that process are blocked.</b> b. Scheduling is application dependent. c. Thread switching doesn't require kernel mode privileges.	02	Difficult	2

		d. The library procedures invoked for thread management in user level threads are local procedures.			
316	Names of some of the Operating Systems are given below: (a) MS-DOS (b) XENIX (c) OS/2 In the above list, following operating systems didn't provide multiuser facility.	a. (a) only b. (a) and (b) only c. (b) and (c) only d. (a), (b) and (c)	01	Easy	2
317	In a lottery scheduler with 40 tickets, how we will distribute the tickets among 4 processes and such that each process gets 10%, 5%, 60% and 25% respectively? P1 P2 P3 P4 a) 12 4 70 30 b) 7 5 20 10 c) 4 2 24 10 d) 8 5 40 30	a. A b. B c. C d. D	02	Medium	2
318	Suppose a system contains n processes and system uses the round-robin algorithm for CPU scheduling then which data structure is best suited for ready queue of the process	a. Stack b. Queue c. <b>Circular Queue</b> d. Tree	02	Medium	2
319	Consider three processes (process id 0, 1, 2 respectively) with compute time bursts 2, 4 and 8 time units. All processes arrive at time zero. Consider the longest remaining time first (LRTF) scheduling algorithm. In LRTF ties are broken by giving priority to the process with the lowest process id. The average turn around time is:	a. <b>13</b> b. 14 c. 15 d. 16	02	Medium	2
320	Consider three processes (process id 0, 1, 2 respectively) with compute time bursts 2, 4 and 8 time units. All processes arrive at time zero. Consider the longest remaining time first (LRTF) scheduling algorithm. In LRTF ties are broken by giving priority to the process with the lowest	a. <b>p2 p1 p2 p1 p2 p0 p1 p2 p0 p1 p2</b> b. p1 p0 p2	02	Medium	2

	process id. The correct sequence of execution will be	<p>p1 p2 p0 p1 p2 p0 p1 p2</p> <p>c. p0 p1 p2 p1 p2 p0 p1 p2 p0 p1 p2</p>																		
32 1	If the quantum time of round robin algorithm is very large, then it is equivalent to:	<p>a. <b>First in first out</b></p> <p>b. Shortest Job Next</p> <p>c. Lottery scheduling</p> <p>d. None of the above</p>	02	Medium	2															
32 2	Which of the following statements are true? I. Shortest remaining time first scheduling may cause starvation II. Preemptive scheduling may cause starvation III. Round robin is better than FCFS in terms of response time	<p>a. I only</p> <p>b. I and III only</p> <p>c. II and III only</p> <p>d. <b>I, II and III</b></p>	02	Medium	2															
32 3	An operating system uses shortest remaining time first scheduling algorithm for pre-emptive scheduling of processes. Consider the following set of processes with their arrival times and CPU burst times (in milliseconds): <table><tr><td>Process</td><td>Arrival Time</td><td>Burst Time</td></tr><tr><td>P1</td><td>0</td><td>12</td></tr><tr><td>P2</td><td>2</td><td>4</td></tr><tr><td>P3</td><td>3</td><td>6</td></tr><tr><td>P4</td><td>8</td><td>5</td></tr></table> The average waiting time (in milliseconds) of the processes is _____.	Process	Arrival Time	Burst Time	P1	0	12	P2	2	4	P3	3	6	P4	8	5	<p>a. 4.5</p> <p>b. 5.0</p> <p>c. <b>5.5</b></p> <p>d. 8.5</p>	2	Difficult	3
Process	Arrival Time	Burst Time																		
P1	0	12																		
P2	2	4																		
P3	3	6																		
P4	8	5																		
32 4	Consider the following set of processes, with the arrival times and the CPU-burst times given in milliseconds <table><tr><td>Process</td><td>Arrival Time</td><td>Burst Time</td></tr><tr><td>P1</td><td>0</td><td>5</td></tr><tr><td>P2</td><td>1</td><td>3</td></tr><tr><td>P3</td><td>2</td><td>3</td></tr></table>	Process	Arrival Time	Burst Time	P1	0	5	P2	1	3	P3	2	3	<p>a. <b>5.50</b></p> <p>b. 5.75</p> <p>c. 6.00</p> <p>d. 7.25</p>	2	Difficult	3			
Process	Arrival Time	Burst Time																		
P1	0	5																		
P2	1	3																		
P3	2	3																		



	P4	4	1				
	What is the average turnaround time for these processes with the preemptive shortest remaining processing time first (SRPT) algorithm ?						
32 5	A uni-processor computer system only has two processes, both of which alternate 10ms CPU bursts with 90ms I/O bursts. Both the processes were created at nearly the same time. The I/O of both processes can proceed in parallel. Which of the following scheduling strategies will result in the least CPU utilization (over a long period of time) for this system ?			<b>a.</b> First come first served scheduling  <b>b.</b> Shortest remaining time first scheduling  <b>c.</b> Static priority scheduling with different priorities for the two processes  <b>d.</b> Round robin scheduling with a time quantum of 5 ms	2	Difficult	3