بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِيْمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

Paper Pattern

MCQS 40 each 1 mark
Short 4 each 2 marks
Short 4 each 3 marks
long 4 each 5 marks

Question No : 21 of 52 Marks: 1 (Budgeted Time 1 Min)

Segmentation is a memory management scheme that supports _____

Answer (Please select your correct option)

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- Programmer's view of memory
- System's view of memory
- Hardware's view of memory
- None of the given

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Question No : 22 of 52 Marks: 1 (Budgeted Time 1 Min)

_____is a variation of fork system call in several Unix operating system used for Virtual Memory.

Answer (Please select your correct option)

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- vfork ( )
- wfork ( )
- avfork ( )
- bfork ( )

Made by: Waqar Siddhu

Question No : 23 of 52 Marks: 1 (Budgeted Time 1 Min)

The bottom layer in the layered approach of Operating System is----------

Answer (Please select your correct option)

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- User interface
- Hardware
- Kernel
- None of the given options

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Question No : 24 of 52 Marks: 1 (Budgeted Time 1 Min)

Named pipes give a ----------flow of data by default

Answer (Please select your correct option)

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- half-duplex (one-way)
- full duplex(both-ways)
- both half-duplex and full duplex
- none of the given options

not sure

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Question No : 25 of 52 Marks: 1 (Budgeted Time 1 Min)

In _____ frame allocation scheme free frames are equally divided among processes

Answer (Please select your correct option)

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- Fixed
- Proportional
- Priority
- All of the given

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Question No : 26 of 52 Marks: 1 (Budgeted Time 1 Min)

---------- automatically holds for printers and other non-sharables

Answer (Please select your correct option)

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- Hold and wait
- Circular wait
- Mutual exclusion
- No preemption

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Question No : 27 of 52 Marks: 1 (Budgeted Time 1 Min)

---------- is a single program that produces an object file

Answer (Please select your correct option)

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- Linker
- Compiler
- Loader
- Text editor

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Question No : 28 of 52 Marks: 1 (Budgeted Time 1 Min)

----------keeps in memory only those instructions and data that are needed at any given time.

Overlays
To enable a process to be larger than the amount of memory allocated to it, we can use overlays. The idea of overlays is to keep in memory only those instructions and data that are needed at any given time. When other instructions are needed, they are loaded into

Answer (Please select your correct option)

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- Paging
- Swapping
- Overlays
- Fragmentation

space occupied previously by instructions that are no longer needed. We illustrate the concept of overlays with the example of a two-pass compiler

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Question No : 29 of 52 Marks: 1 (Budgeted Time 1 Min)

The address generated by the CPU, after any indexing or other addressing-mode arithmetic, is called a --------*address*, and the address it gets translated to by the MMU is called a ---------*address*.

Answer (Please select your correct option)

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- Virtual, physical
- Hexadecimal, Binary,
- Valid, invalid
- Physical, Virtual

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Question No : 30 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ is/are a memory management scheme that supports programmer's view of memory.

Answer (Please select your correct option)

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- Paging
- Segmentation

  Segmentation is a memory management scheme that supports programmer's view of memory.
- All of the given options
- Demand Paging

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Question No : 31 of 52 Marks: 1 (Budgeted Time 1 Min)

A new process is created by the---------- system call

Answer (Please select your correct option)

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- exit
- fork
- wait
- exec

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Question No : 32 of 52 Marks: 1 (Budgeted Time 1 Min)

The ---------- are used for communication between related or unrelated processes on the same system or unrelated processes on different systems.

Answer (Please select your correct option)

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- None of the given
- SSD socket
- DSD socket
- BSD sockets

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Question No : 33 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ wastes CPU cycles and hence a problem in real multiprogramming system.

Answer (Please select your correct option)

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- Busy waiting
- Semaphore
- Critical section
- Mutex

Made by: Waqar Siddhu

Question No : 34 of 52 Marks: 1 (Budgeted Time 1 Min)

High-level synchronization construct that allows the safe sharing of an abstract data type among concurrent processes is called a ----------

Answer (Please select your correct option)

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- Read/Write Lock

A data object (such as a file or a record) is to be shared among several concurrent processes. Some of these processes, called **readers**, may want only to read the content of the shared object whereas others, called **writers**,

- Swap
- Semaphore
- Monitor

Made by: Waqar Siddhu

Question No : 35 of 52 Marks: 1 (Budgeted Time 1 Min)

In ..... system, the user space contains one process at a time because only one process is executing at a given time.

Answer (Please select your correct option)

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- Multi programmed
- Batch

  In case of a batch system, the user space contains one process at a time because only one process is executing at a given time.
- Time-sharing system
- None of the given

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Question No : 36 of 52 Marks: 1 (Budgeted Time 1 Min)

Which one of the following is the correct syntax to copy file1 to file2?

Copying Files
You can use the cp command for copying files. You can use the cp file1 file2 command to copy file1 to file2. The following command can be used to copy file1 in your home directory to the ~/memos directory as file2.
$ **cp ~/file1 ~/memos/file2**
$

Answer (Please select your correct option)

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- cp file2, file1
- cp file1/file2
- cp file2 file1
- cp file1 file2

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Question No : 37 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ points to the smallest memory address of a process.

Answer (Please select your correct option)

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- Limit register

  The **base** (re-location) and **limit** registers are used to point to the smallest memory address of a process and its size, respectively
- Base register
- Stack pointer
- None of the given

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Question No : 38 of 52 Marks: 1 (Budgeted Time 1 Min)

A wait operation on a semaphore should not occur within a critical section controlled by that semaphore because

Answer (Please select your correct option)

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- A deadlock will occur
- A semaphore is not a shared variable — Ni' AANDA.. and NOT SURE.....
- A signal on a semaphore is always given from outside the critical section
- None of the given

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Question No : 39 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ page replacement algorithm suffers from Belady's anamoly.

Answer (Please select your correct option)

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- LRU
- MRU
- FIFO
- LIFO

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Question No : 40 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ is a high speed cache used to hold recently referenced page table entries a part of paged virtual memory

Answer (Please select your correct option)

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- Translation Look aside buffer — **A solution to this problem is to use special, small, fast lookup hardware, called translation look-aside buffer (TLB), which typically has 64−1024 entries. Each entry is (key, value).**
- Inverse page table
- Segmented page table
- All the above

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Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

What do we name to an address that is generated by the CPU?

Answer (Please click here to Add Answer)

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An address generated by the CPU is commonly referred to as a logical address.

page 153

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Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Which anamoly is involved in FIFO page replacement?

Answer (Please click here to Add Answer)

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This is due to the **Belady's Anomaly** which states that "For some page replacement algorithms, the page fault rate may increase as the number of allocated frames increases."

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Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

The problem with using an acyclic-graph structure is ensuring that there are no cycles. What is the solution?

Answer (Please click here to Add Answer)

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A solution is to allow only links to files not subdirectories. Also every time a new link is added use a **cycle detection algorithm** to determine whether it is OK. If cycles are allowed, we want to avoid searching any component twice.

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Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

The main purpose of the computer system is to run different programs, why we run these programs?

Answer (Please click here to Add Answer)

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Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

What is the difference between a physical address and a virtual address?

Answer (Please click here to Add Answer)

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Real memory uses Physical addresses. ~~These are the members that the memory chips react to on the bus~~. Virtual addresses are the logical addresses that refer to a process' address space. ~~Thus, a machine with a 16-bit word can generate virtual addresses up to 64K, regardless of whether the machine has more or less memory than 64 KB.~~

Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

What is Mounting? Name two types of mounting. Give your answer with respect to File System?

Answer (Please click here to Add Answer)

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Mounting makes file systems, files, directories, devices, and special files available for use at a particular location. **Mount point** is the actual location from which the file system is mounted and accessed. You can mount a file or directory if you have access to the file or directory being mounted and write permission for the mount point

There are types of mounts:

- Remote mount
- Local mount

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Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

How vfork system call differes from fork system call?

Answer (Please click here to Add Answer)

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Several versions of UNIX provide a variation of the fork() system call—vfork() (for virtual memory fork). vfork() operates differently than fork() with copy on write. With vfork() the parent process is suspended and the child process uses the address space of the parent. Because vfork() does not use copy-on-write, if the child process changes any pages of the parent's address space, the altered pages will be visible to the parent once it resumes. Therefore, vfork() must be used with caution, ensuring that the child process does not modify the address space of the parent.

Made by: Waqar Siddhu

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Consider this algorithm for mutual exclusion.

```
Process 1{                      Process 2 {
while true {                    while true {
    while (turn == 1)               while (turn == 2)
        ; /* do nothing */            ; /* do nothing */
```

Answer (Please click here to Add Answer)

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Mutual Exclusion
If process P_i is executing in its critical section, then no other process can be executing in their critical section.

Read this line carefully then see the Algro full and write ans..

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Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

Briefly explain that how a Page Fault occurs and who is resoponsible to handle Page Fault?

When the process tries to access locations that are not in memory, the hardware traps the operating system. This is called as **Page Fault**

Answer (Please click here to Add Answer)

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and i thinkOS is responsible to handle the page fault.

sawaping, or restart the process...

Made by: Waqar Siddhu

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

In case of file protection, what should the file owner/creator be able to control? And what operations need to be controlled?

Answer (Please click here to Add Answer)

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File owner/creator should be able to control
- What can be done
- By whom

Several types of operations may be controlled:
- Read: read from the file
- Write: write or rewrite to the file
- Execute: Load the file into memory and execute it
- Append: Write new information at the end of the file
- Delete: Delete the file and free its space for possible reuse
- List: List the name and attributes of the file

- Name
- Type
- Location
- Size
- Protection
- Owner
- Time and date created
- Time and date last updated
- Read/write pointer value

Made by: Waqar Siddhu

Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Analyze that how an operating system protects the CPU.

Answer (Please click here to Add Answer)

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CPU Protection

Timer – interrupts computer after specified period to ensure operating system maintains control.
- Timer is decremented every clock tick.
- When timer reaches the value 0, an interrupt occurs.

- Timer commonly used to implement time sharing.
- Time also used to compute the current time.
- Load-timer is a privileged instruction.

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Let us consider a page size of 16 bytes and process address space of 32 pages and physical address space of 64 frames. Calculate the following
a) Size of logical address i.e. Number of bits needed to uniquely identify a page in this address space of 16 pages.
b) Logical address in bits for (18, 10). Where 'p' and 'd' are 18 and 10 respectively.

Answer (Please click here to Add Answer)

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Logical address size = |p| + |d| = 18+10 bits = 28 bits

NI AANDA :'(

Made by: Waqar Siddhu

Question No : 1 of 52 Marks: 1 (Budgeted Time 1 Min)

1 KB or 1 kilobyte is equivalent to ------

Answer (Please select your correct option)

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- 10 bytes
- 1000 bytes
- 1024 bytes
- 10000 bytes

Made by: Waqar Siddhu

Question No : 2 of 52 Marks: 1 (Budgeted Time 1 Min)

A ----------system collects physically separate, possibly heterogeneous, systems into a single coherent system, providing the user with access to the various resources that the system maintains

Answer (Please select your correct option)

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- Distributed
- Real-time
- Single user
- Time-sharing

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Question No : 3 of 52 Marks: 1 (Budgeted Time 1 Min)

Preemptive ----------scheduling is sometimes called **shortest-remaining-time-first** scheduling.

Answer (Please select your correct option)

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- First-Come-First-Served (FCFS)
- Round-Robin
- Sorted Job First (SJF)
- Priority

FCFS is a non-preemptive scheduling algorithm.

- The SJF algorithm may either be preemptive or non-preemptive.
- Preemptive SJF scheduling is sometimes called shortest-remaining-time-first scheduling.
- SJF is a special case of the general priority-scheduling algorithm.
- Priority scheduling can either be preemptive or non-preemptive.
- Round Robin is preemptive scheduling algorithm.
- Round-robin scheduling algorithm is designed especially for time-sharing systems.
- RR is similar to FCFS scheduling but preemption is added to switch between processes

Made by: Waqar Siddhu

Question No : 4 of 52 Marks: 1 (Budgeted Time 1 Min)

The semaphore empty is initialized to the value ---------; the semaphore full is initialized to the value --------.

Answer (Please select your correct option)

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- 0,n
- n,0
- n,n
- 0,0

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Question No : 5 of 52 Marks: 1 (Budgeted Time 1 Min)

A ----------is a region of code where shared resources are accessed.

Answer (Please select your correct option)

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- deadlock
- critical region
- process
- thread

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Question No : 6 of 52 Marks: 1 (Budgeted Time 1 Min)

In ---------- technique, memory is divided into several fixed-size partitions.

Answer (Please select your correct option)

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- Swapping
- Overlays
- Multiprogramming with Fixed Tasks (MFT)
- Multiprogramming with Variable Tasks (MVT)

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Question No : 7 of 52 Marks: 1 (Budgeted Time 1 Min)

Every ----------generated by the CPU is divided into two parts: a page number (p) and a page offset (d).

Answer (Please select your correct option)

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- Page
- Process address space
- Physical address
- Logical address

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Question No : 8 of 52 Marks: 1 (Budgeted Time 1 Min)

If validation bit is 0, it indicates a/an -------- state of segment.

Answer (Please select your correct option)

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- protected
- shared
- legal
- illegal

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Question No : 9 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ is based on the locality of reference concept— the least frequently used page is not in the current locality

Answer (Please select your correct option)

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- Least Frequently Used algorithm
- Page Buffering Algoritm
- None of the given options
- Most Frequently Used algorithm

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Question No : 10 of 52 Marks: 1 (Budgeted Time 1 Min)

In _____ allocation scheme number of frames allocated to a process is proportional to its size .

Answer (Please select your correct option)

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- None of the given options
- Fixed Allocation
- Propotional Allocation
- Priority Allocation

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Question No : 11 of 52 Marks: 1 (Budgeted Time 1 Min)

In case of thrashing if CPU utilization is too low the operating system _____ the degree of multiprogramming

Answer (Please select your correct option)

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- Increases
- Decreases
- Increases or Decreases
- None of the given options

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Question No : 12 of 52 Marks: 1 (Budgeted Time 1 Min)

_____ enable processes to communicate with each other

FIFO (created with the mkfifo or mknod commands or system calls): enable processes to communicate with each other. A FIFO(name pipe

Answer (Please select your correct option)

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- Directory
- FIFO
- Link File
- Ordinary File

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Question No : 13 of 52 Marks: 1 (Budgeted Time 1 Min)

When a _____link is created, a directory entry for the existing file is created

Answer (Please select your correct option)

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- Soft
- Hard
- Soft or Hard
- Soft or Hard

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Question No : 14 of 52 Marks: 1 (Budgeted Time 1 Min)

In _____, each file is a linked list of disk blocks: blocks may be scattered anywhere on the disk.

Answer (Please select your correct option)

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- Indexed Allocation
- Contiguous Allocation
- Linked Allocation
- None of the given options

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Question No : 15 of 52 Marks: 1 (Budgeted Time 1 Min)

Shared libraries and kernel modules are stored in _____ directory

Answer (Please select your correct option)

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- /bin
- /dev
- /boot
- /lib

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Question No : 16 of 52 Marks: 1 (Budgeted Time 1 Min)

The problem of Deadlocks can be solved by _____ method(s).

Answer (Please select your correct option)

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- Deadlock prevention
- Deadlock avoidance
- Allowing deadlock and recovery
- All of the given

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Question No : 17 of 52 Marks: 1 (Budgeted Time 1 Min)

In _____ page replacement algorithm oldest frame is replaced with another.

Answer (Please select your correct option)

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- LIFO
- FIFO
- LRU
- Optimal

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Question No : 18 of 52 Marks: 1 (Budgeted Time 1 Min)

In Resource Allocation Graph, a _____ $P_i \rightarrow R_j$ indicates that process P_i may request resource R_j at some time in the future.

Answer (Please select your correct option)

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- Claim edge
- Request edge
- Assignment edge
- Allocation edge

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Question No : 19 of 52 Marks: 1 (Budgeted Time 1 Min)

Assume a logical address space of 16 pages of 1024 words, each mapped into a physical memory of 32 frames. Each word consists of 2 bytes. What will be the total number of bits required for **p (page number)**?

Answer (Please select your correct option)

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- 4 bits **(p166) No. of bits needed for p = ceiling [log2 16] bits = 4 bits**
- 8 bits
- 16 bits
- 32 bits

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Question No : 20 of 52 Marks: 1 (Budgeted Time 1 Min)

In the Scan algorithm the disk _____ starts at one end of the disk, and moves toward the other end, servicing requests as it reaches each cylinder, until it gets to the other end of the disk.

Answer (Please select your correct option)

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- arm
- cylinder
- head
- non of these

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