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CS604 SOLVED MCQS Mega File For FINAL TERM Solved By

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_____ Commands in Linux is used to copy file

Is

Cp (p27)

Mv

Mkdir

The correct command for compiling C program named program.c in Linux environment is

Gcc program.c -o FirstPrgram (p28)

Gcc -o FirstProgram program.c

Gcc -z FirstProgram program.c

Gcc program.c -m FirstPrgram

Bottom of Form

Top of Form

Question # 1

_____ scheduler selects the process from the job pool and put them in main memory.

Select correct option:

Long term (p33)

Short term

Medium term

Swapper

Question # 2

The process id returned to the child process after successful fork system call execution is _____.

Select correct option:

0 (p36)

1

2

3

Question # 6

_____ displays information about the top processes.

Select correct option:

Ls

CS

Top (p64)

Cd

Question # 8

Using _____ system, we can create a new process in Linux.

Select correct option:

fork (p36)

Exec 2

Wait

Exit

Question # 3

_____ commands in Linux helps to create a new directory.

Select correct option:

Ls

Cp

Mv

Mkdir (p26)

Cooperating processes never share any data, code, memory or state.

Select correct option:

True

False (p41)

Question # 7

The manual pages can be read in Linux using ____ command.

Select correct option:

Man (p4)

Wan

Desc

Help

Question # 8

In UNIX/ Linux, by default the standard input file is attached to the _____

Select correct option:

Standard input: 0 (keyboard)

Standard output: 1 (display screen)

Standard error: 2 (display screen)

Mouse

Keyboard (p52)

Light pen

Joystick

Question # 2

Shared libraries and kernel modules are stored in _____ directory.

Select correct option:

/bin

/dev

/boot

/lib (p23)

Question # 7

Swapper is also termed as Short term scheduler.

Select correct option:

True

False (p34) (Medium term = Swapper) 3

Question # 10

You can use the mv file1 file2 command to move _____

Select correct option:

File1 to file2 (p27)

File 2 to file 1

This command will not work for moving files

None of the option is correct.

Question # 2

_____ is also called Swapper.

Select correct option:

Long term

Short term

Medium term (p34)

Swap space

Question # 3

_____ System call is used to write to a file or FIFO or any other IPC channel.

Select correct option:

Read

Write (p45)

Open

Fork

Question # 6

If your processor does not have two slots empty in Per Process File Descriptor Table, then your _____ system call will fail.

Select correct option:

The pipe () system call fails for many reasons, including the following:

-At least two slots are not empty in the PPFDT—too many files or pipes are open in the process

-Buffer space not available in the kernel

-File table is full

Pipe (p52)

Read

Write

Open

2. The Operating system is a layer of software between _____ and _____.

Hardware, software application

Kernel, hardware

Dos, Windows

Windows, Kernel

5. Command-line interpreter is also called _____ in some operating systems.

a) Kernel

b) Shell (p13)

c) Signal

d) API 4

6. I/O instructions are Privileged Instructions.

a) True (p8)

b) False

7. In Linux directory structure, there is _____ root directory.

a) 1 (p22)

b) 2

c) 3

d) 4

8. Utilities used for system administration (halt, ifconfig, fdisk, etc.) are stored in _____ directory.

a) /dev

b) /boot

c) /lib

d) /sbin (p24)

9. Rm and mkdir commands are used to _____ directory.

a) Create

b) Move

c) Remove (p27)

d) Modify

15. In _____ communication the process which wants to communicate with the other process must explicitly name the recipient and the sender.

a) Direct (p43)

b) Indirect

c) Automatic

d) Self

16. In indirect inter process communication, a sender _____ mention the name of the recipient.

a) does

b) does not (p43)

17. The returned code to the child process after successful fork system call execution is

a) 1

b) 2

c) 3

d) 0 (p32)

18. If the fork system call fails, it returns

a) 1

b) -1 (p32)

c) 2 5

d) 0

Question # 1

The problem with priority scheduling algorithm is _____.

Select correct option:

Deadlock

Starvation (p84)

Aging

Nice value

- ☐ **A major problem with priority- scheduling algorithms is indefinite blocking (or starvation).**
- ☐ **Aging is solution to the problem of indefinite blockage of low-priority processes.**

A major problem with priority scheduling algorithms is _____.

Select correct option:

Deadlock

Aging

Starvation (P # 84)

None of these

_____ is a solution to the problem of indefinite blockage of low-priority processes.

Starvation

Deadlock

Aging (p85)

None of the these

Question # 4

Batch programs are usually _____ programs.

Select correct option:

Interactive

Non-interactive (Google)

Foreground

Preemptive

Question # 2

All Threads within a process share the _____ address space.

Select correct option:

Same (p70)

Different

Question # 6

_____ scheduling allows a process to move between queues.

Select correct option:

Round Robin

First Come First Serve

Multilevel Feedback Queue (p90) 6

Shortest Remaining Time First

Question # 4

POSIX is a standard developed by _____

Select correct option:

ANSI

IEEE (Reference)

ISO

ACM

Question # 5

The nice value helps in assigning _____ to a process.

Select correct option:

Priority (Google)

Weight

Time

Scheduling

Question # 9

_____ Integer shows the highest priority of a process in CPU scheduling

Select correct option:

Small (p84)

Large

Question # 3

_____ Command display the status of a process.

Select correct option:

Ls

Ps (p63)

Gcc

Cat

In UNIX/ Linux, by default the standard output file is attached to the _____

Select correct option:

File

Screen (p52)

Printer

Scanner

The priority of a process can be changed using _____ command.

Select correct option:

Nice (p # 92)

cmd

cat

grep 7

Question # 8

_____ is a preemptive scheduling algorithm.

Select correct option:

First Come First Serve

Shortest Job First

Round Robin (p87)

None of these

- 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.

Question # 8

_____ is used in real time operating systems.

Select correct option:

Non-preemptive scheduling

Preemptive scheduling (Reference)

Dispatching scheduling

FCFS scheduling

Question # 10

The procedure “The time at which the process finished working MINUS the arrival time of the process MINUS CPU burst for that process” will help calculate the _____.

Select correct option:

Non-preemptive Shortest Job First scheduling

Preemptive Shortest Job first scheduling. (p82, 83)

FCFS

RR Scheduling

Non-Preemptive => Waiting time = Finish Time – Arrival Time

Preemptive => Waiting time = Finish Time – Arrival Time – Burst time

Question # 9

_____ scheduling algorithm is sometimes called shortest remaining time first scheduling algorithm.

Select correct option:

Non-preemptive SJF

Priority Scheduling

Preemptive Shortest Job First (P #83)

FCFS

_____ scheduling algorithm can be preemptive or non-preemptive.

First Come First Serve

Shortest Job First (P # 83)

Round Robin

Priority

Question # 7

Round Robin algorithm is similar to _____ scheduling but preemption is added to switch between processes.

Shortest job first

Shortest remaining time first

First come first serve (P # 86)

None of these

Question # 10

Round Robin algorithm is most suitable for _____.

Time sharing system (p86)

Real time systems and batch systems

Running batch programs

Expert system

Question # 1

Kernel is responsible for scheduling the user level threads.

True

False (Reference)

The kernel is responsible for scheduling the kernel threads, so it effectively schedules the user threads at the same time.

Question # 2

The priorities of processes in the _____ group remain fixed.

Select correct option:

Kernel (p # 91)

User

Question # 4

_____ is the basis of queuing theory which is branch of mathematics used to analyze systems involving queues and servers.

Little's formula (p # 94)

Deterministic theory

Queuing theory

Queuing analysis

_____ systems involving queues and servers

Little's formula (p # 94)

Deterministic Modeling 9

Queuing Theory

Queuing analysis

Question # 9

The scheduling of _____ are done by the operating system.

Kernel threads (p71)

User level threads

Both

None of these

- Kernel threads are supported directly by the operating system.

Question # 10

Taking the CPU from one process and giving the CPU to another process is termed as

Select correct option:

Context switching (p87)

Dispatching

Swapping

Tracking

Question # 10

The process of switching from one process to another is called latency

True

False

The process of switching from one process to another is called -----

Context switching (p87)

Scheduling

Quantum period

Latency

The time it takes for the dispatcher to stop one process and start another running is known as the dispatch latency.

The rotational latency is the additional time waiting for the disk to rotate the desired sector to the disk head.

I/O time is composed of seek, latency and transfer times. Transfer time is proportional to the amount transferred, and this argues for a small page size. However, latency and seek times usually dwarf transfer times.

Question # 12

The time it takes for the dispatcher to stop one process and start another running is known as the-----.

Dispatch latency (p80)

Scheduling

Context switching

None of the given options

Question No: 10

The hardware mechanism that enables a device to notify CPU is called an -----
Interrupt (p553 Operating Systems Concepts)

Signal

Trap

Process

Question # 1

Address Binding will be at _____ in Multiprogramming with Fixed Tasks (MFT)

Select correct option:

Run time

Load time (p161)

Dynamic time

None of the given options

Question # 2

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

Select correct option:

Swapping

Overlays

Multiprogramming with Fixed Tasks (MFT) (p160)

Multiprogramming with Variable Tasks (MVT)

Question # 4

-----holds the smallest legal physical memory address for a process

Select correct option:

Base register (p10)

Limit register

Index register

Stack pointers register

Question # 5

-----refers to the situation when free memory space exists to load a process in the memory but the space is not contiguous.

Select correct option:

Segmentation

Internal fragmentation

Swapping

External Fragmentation (p163)

Question # 7

Main Memory is _____ memory.

Select correct option:

-Volatile

Non-volatile

Permanent

Virtual 11

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 space occupied previously by instructions that are no longer needed.

Overlays are implemented by the _____

Operating system

Programmer (p157)

Kernel

Shell

Question # 13

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

Select correct option:

Fragmentation

Paging

Swapping

Overlays (p157)

Question # 10

Secondary Storage memory devices have _____ memory.

Select correct option:

Volatile

Permanent and non-volatile (p151)

Temporary

None of the options is correct

Question # 12

_____ Algorithm is used in Deadlock avoidance.

Select correct option:

Bakery

Banker's (p137)

Mutual exclusion

Safe Sequence

Question # 14

Addresses generated relative to part of program, not to start of physical memory are

Select correct option:

Relocatable (page334 Operation systems concepts)

Virtual

Symbolic

Physical

Question # 15 12

The run-time mapping from virtual to physical addresses is done by a piece of hardware in the CPU, called the -----

Select correct option:

Memory management unit (MMU) (p152)

CPU Scheduler

Registers

None of the given options

Question # 2

_____ Algorithm is used for solving n-process critical section problem.

Select correct option:

Bankers

Bakery (p103)

Babbles

None of the given

Question # 4

_____ is an integer variable accessible through wait and signal which is atomic operations

Select correct option:

Semaphore (p109)

Mutex

Busy waiting

Signal

Question No: 2

You can display the contents (names of files and directories) of a directory in UNIX/Linux directory structure with the ----- command.

Ll

s

Ls (p25)

None of the given options

Question No: 3

The ----- system call suspends the calling process.

Fork

Wait (p39)

Exec

Exit

Question No: 4

In -----addressing, the recipient is not required to name the sender.

Symmetric

Asymmetric (p44)

Both symmetric and asymmetric

None of the given options 13

Question No: 10

The main characteristic of a Real time system is

Efficiency (p7)

Large Virtual Memory

Large secondary storage device

Usability

Question No: 14

A is an integer variable that, apart from initialization is accessible only through two standard atomic operations: wait and signal.

Semaphore (p109)

Monitor

Critical region

Critical section

Question No: 1 MB or 1 megabyte is equivalent to----1048576 bytes

1024 bytes

1024₂ bytes Ref (Google)

1024₃ bytes

1000000 bytes

Question No: 2

----- spend more time doing IO than computations short CPU bursts

CPU bound processes

IO bound processes (p29)

None of the given options

With -----you use condition variables.

Semaphores

Read/Write Locks

Swaps

Monitor (p124)

Deadlocks can be described more precisely in terms of a directed graph called a system

Directed graph

Critical path

Resource allocation graph (p130)

Mixed graph

Object files and libraries are combined by a ----- program to produce the executable binary

Compiler

Linker (p428, 818 Operating system concepts)

Text editor 14

Loader

The set of all physical addresses corresponding to the logical addresses is a ----- of the process

Physical address space (p153)

Process address space

None of the given options

Logical address space

----- indicates size of the page table.

Translation look-aside buffers

Page-table length registers (PTLR) (p350 Operating system concepts)

Page-table base register (PTBR)

Page offset

Question

-----points to the page table.

Translation look-aside buffers

Page offset

Page-table length registers (PRLR)

Page-table base register (PTBR) (p347 OSC)

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

Protected

Shared

Legal

Illegal (p178)

Question No: 11

In ----- allocation scheme free frames are equally divided among processes

Fixed Allocation (p205)

Proportional Allocation

Priority Allocation

None of the given options

----- is used to store data on secondary storage device, e.g., a source program(in C), an executable program.

Block Special File

Link File

Ordinary File (p218)

Directory

The ----- method requires each file to occupy a set of contiguous blocks on the disk.

Contiguous Allocation (p234)

Linked Allocation 15

Indexed Allocation

None of the given options

User mode can run the Privileged instructions

True

False (p8)

Privileged instructions can be used to perform hardware operations that a normal user process should not be able to perform, such as communicating with I/O devices. If a user process tries to execute a privileged instruction, a trap should be generated and process should be terminated prematurely.

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

Busy waiting (p256 OSC)

Spinlock

Critical section

Mutex

The size of pages and frames are same in logical memory and physical memory respectively.

True

False

Which command, Display permissions and some other attributes for prog1.c in your current directory?

Ls -l prog1.c

Ls -d prog1.c

Ls file prog1.c

Ls -l prog1.c /Directory

In the C-Scan and C-Look algorithms, when the disk head reverses its direction, it moves all the way to the other end, without serving any requests, and then reverses again and starts serving requests.

True

False

In paged segmentation, we divide every segment in a process into _____pages.

Fixed size (p180) 17

Variable size

Intel 80386 used paged segmentation with _____ level paging.

One

Two (p183)

Three

Four

The logical address of Intel 80386 is _____

36 bits

48 bits (p183)

64 bits

128 bits

Following is NOT true about Virtual memory.

Virtual memory help in executing bigger programs even greater in size that of main memory.

Virtual memory makes the processes to stuck when the collective size of all the processes becomes greater than the size of main memory.

Virtual memory also allows files and memory to be shared by several different processes through page sharing.

Virtual memory makes the task of programming easier because the programmer need not worry about the amount of physical memory,

The Swap instruction which is the hardware solution to synchronization problem does not satisfy the _____ condition, hence not considered to be a good solution.

Progress

Bounded waiting

Mutual exclusion

None of the given

Summarize the tradeoffs among simple arrays, trees, and hash tables as implementations of a page table.

A ----- (or an *exception*) is a software-generated interrupt caused either by an error (division by zero or invalid memory access) or by a user request for an operating system service.

Interrupt

Trap

Signal

Process

Which register holds the smallest legal physical memory address for a process?

Base register

Limit register

Status register

None of the given options

The -----semaphore provides mutual exclusion for accesses to the buffer pool and is initialized to the value 1. 18

Mutex

Binary

Counting

None of the given options

Binary semaphores are those that have only two values-----

0 and n

0 and 0

0 and 1

None of the given options

Physical memory is broken down into fixed-sized blocks, called----- and

Logical memory is divided into blocks of the same size, called -----

Frames, pages

Pages, Frames

Frames, holes

Holes, segments

A page table needed for keeping track of pages of the page table is called

2-level paging

Page directory

Page size

Page table size

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*.

Virtual, physical

Hexadecimal, Binary,

Valid, invalid

Physical, Virtual

Question No: 11

Each page is a power of ----- bytes long in paging scheme.

2 (p163)

3

4

5

Question No: 12

_____ is a way to establish a connection between the file to be shared and the directory entries of the users who want to have access to this file.

Link (p229)

Directory

Common Group 19

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Access Permission

When a _____ link is created, a directory entry for the existing file is created

Soft

None of the given options

Hard (p225)

Soft or Hard

Soft or Hard

wrong use of wait and signal operations (in context with semaphores) can cause _____ problem(s).

Mutual Exclusion

Deadlock

Bounded Waiting

All of the given options (p114)

If a system is not in a safe state, there can be no deadlocks.

True

False

In _____ page replace algorithm we will replace the page that has not been used for the longest period of time.

Counter based

Least Frequently Used

FIFO

LRU (p200)

An acyclic graph does not allow directories to have shared subdirectories and files.

True

False (p223)

A modification of free-list approach in free space management is to store the addresses of n free blocks in the first free block. Known as _____

Counting

Linked list

Bit vector

Grouping (p241)

In deadlock detection and recovery algorithm, a deadlock exists in the system if and only if the wait for graph contains a _____

Cycle 20

Graph

Edge

Node

Intel is basically designed for following Operating Systems except _____.

MULTICS

OS/2

Windows

Linux

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

User interface

Hardware

Kernel

None of the given options

In which of the following operations, the scheduler is not called into play?

Process requests for I/O.

Process finishes execution.

Process finishes its time allotted.

All of the above through c

None of the through c above

Consider the following preemptive priority-scheduling algorithm based on dynamically changing priorities. Larger priority numbers imply higher priority. When a process is waiting for the CPU (in the ready queue but not running), its priority changes at a rate X when it is running, its priority changes at a rate Y . All processes are given a priority of 0 when they enter the ready queue. The parameters can be set to give many different scheduling algorithms. What is the algorithm that results from $Y > X > 0$?

LIFO

FCFS

Round Robin

None of the above

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? Give a formula in terms of n .

$n(n-1)$

n^2

$N!$

$N/2$

"To eliminate external fragmentation in segmentation the scheme used is"

Segmentation is a memory management scheme that supports _____?

Programmer's view of memory

System's view of memory

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Hardware's view of memory

None of the given

----- Register contains the size of the process

Base register

Index register

Limit register

Stack pointers register

Preventing the condition of _____ to happen, deadlocks can be prevented to happen

Critical Region

Circular wait

Monitors

Critical Section

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)?

4 bits

8 bits

16 bits

32 bits

A dashed line is used to represent a _____ in Resource Allocation Graph

Claim edge

Request edge

Assignment edge

Allocation edge

Question # 1

The main memory is usually divided into partitions, one for _____ and other for _____.

Select correct option:

Operating System, User processes

Operating system, CPU

Processes, Virtual Memory

Base Register, Limit Register

_____ is used in the detection and recovery mechanism to handle deadlocks. Select correct option:

Wait-for Graph

Resource allocation Graph

Circular Graph

Claim Edge Graph

_____ is caused due to un-used space in fixed size blocks/ pages. Select correct option: 22

Internal fragmentation External fragmentation

Paging

MVT

In Swapping technique of Memory Management, the total amount transfer time is directly proportional to the _____.

Select correct option:

Amount of memory swapped

Amount of space on backing store space on main memory

All the given options are correct

What do we name to an address that is generated by the CPU? Select correct option:

Logical address

Physical address Binary addresses

None of the given options

The -----scheme is not applicable to a resource allocation system with multiple instances of each resource type.

Select correct option:

Wait for graph

Resource allocation graph

Both Resource-allocation and wait-for graph

None of the given options

Memory protection in paging is achieved by associating _____ with each page. This bit indicates whether the page is in the process address space or not. Select correct option:

Protection bits

Counting bits

Paging table segment table

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.

Select correct option:

Claim edge

Request edge

Assignment edge Allocation edge

_____ is caused due to un-used space in physical memory

Internal fragmentation External fragmentation 23

Paging

MVT

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

Select correct option: Page

Process address space Physical address

Logical address

What do we name to an address that is loaded into the memory-address register of the memory?

Select correct option: Logical address

Physical address

Binary addresses

None of the given options

Variable names are ----- addresses

Select correct option: Physical

Relocatable Relative

Symbolic

The collection of processes that is waiting on the disk to be brought into the memory for execution forms the -----

Select correct option:

Input queue

Output queue

Both input and output queue None of the given options

In Swapping technique of Memory Management, the total amount transfer time is directly proportional to the _____.

Select correct option:

Amount of memory swapped

Amount of space on backing store

Space on main memory

All the given options are correct

Question # 5

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

Select correct option:

Logical address

Physical address 24

Binary addresses

None of the given options

The run-time mapping from virtual to physical addresses is done by a piece of hardware in the CPU, called the -----

Select correct option:

Memory management unit (MMU)

CPU Scheduler

Registers

None of the given options

What do we name to an address that is loaded into the memory-address register of the memory?

Select correct option:

Logical address

Physical address

Binary addresses

None of the given options

If the system can allocate resources to each process in some order and still avoid a deadlock then it is said to be in _____ state

Safe

Un-Safe

Mutual

Starvation

_____ is a process for mapping a name to an address.

Addressing

Binding

Routing

Memory

When the address used in a program gets converted to an actual physical RAM address, it is called -----

Select correct option:

Execution

Loading

Address Binding

Compiling

-----holds the smallest legal physical memory address for a process

Select correct option:

Base register (p331)

Limit register

Index register

Stack pointers register 25

Main Memory is _____ memory.

Select correct option:

Volatile

Non-volatile

Permanent

Virtual

Question # 8

In _____, the library files are linked at load time.

Select correct option:

Static Linking

Dynamic Linking

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

Select correct option:

Linker

Compiler (Ref)

Loader

Text editor

Cache is non-volatile memory.

Select correct option:

True

False

LRU page replacement algorithm can be implemented by

Select correct option:

Counter

Stack

Linked list

All of the given options (p201)

Question # 3

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)?

4 bits (p166) No. of bits needed for p = ceiling $\lceil \log_2 16 \rceil$ bits = 4 bits

8 bits

16 bits

32 bits

Question # 4

Assume a logical address space of 16 pages, each 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 f (frames)?

Select correct option:

5 (p166) No. of bits needed for f = ceiling $\lceil \log_2 32 \rceil$ bits = 5 bits 26

6

7

8

Question # 5

In _____ page replacement algorithm we will replace the page that has not been used for the longest period of time.

Select correct option:

Counter based

Least Frequently Used

FIFO

LRU (p200)

Question # 6

_____ is the separation of user logical memory from physical memory.

Select correct option:

ROM

Physical memory

Virtual Memory (p186)

None of the given options

Question # 8

Following are the advantages of Virtual memory EXCEPT

Select correct option:

Efficient process creation

Concept of memory mapped files

Low CPU consumption (p186)

Running large sized processes

Question # 9

A _____ system is similar to a paging system with swapping

Select correct option:

Context switching

Demand paging (p187)

Page fault

None of the given options

Question # 10

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

Fixed Allocation

Proportional Allocation (p204)

Priority Allocation

None of the given options

Question # 2

The major criterion in the selection of a particular algorithm is that we want to 27

Select correct option:

Minimize the number of page faults. (p193)

Increase efficiency.

Reduce running time of page replacement algorithm.

Maximize the number of page faults.

_____ is the operating system's attempt to improve the computer system's Utilization and throughput.

Select correct option:

Exec

Fork

Demand Paging (p197)

Thrashing

Question # 7

To eliminate external fragmentation in segmentation the scheme used is _____.

Select correct option:

Fixed size partition scheme

Variable size partition scheme

Fixed size paging scheme

Variable size paging scheme

Question # 9

In a UNIX system, _____ system call can be used to request the operating system to memory map an opened file.

Select correct option:

mmap() (p196)

fork()

exec()

read()

Question # 2

For some page replacement algorithms, the page fault rate may increase as the number of allocated frames _____.

Select correct option:

Constant

Decreased

Increased (p198)

All of the given

_____ is a variation of fork system call in several Unix operating system.

Select correct option:

vfork() (p194)

wfork()

avfork()

bfork() 28

The main criteria for Page Replacement in Optimal Page Replacement Algorithm is to Select correct option:

Replace that page which will not be used for the longest period of time. (p200)

Replace that page which will be required most frequently in the execution of a process

Replace the page which is biggest in size

Replace the page which is smaller in size

Question # 7

In pages segmentation, the logical address is legal if d is _____ segment length.

Select correct option:

Less than (p176)

Greater than

Equal to

Greater than or equal to

○ Segment number s is legal if $s < \text{STLR}$, and offset, d, is legal if $d < \text{limit or Segment Length}$.

The frame that has been modified during execution of a process is usually called _____ frame.

Select correct option:

Clean

Dirty (Reference)

Overwritten

Ideal

FIFO Page Replacement Algorithm has the lowest page fault rate

Select correct option:

True

False (p198, 200)

○ An optimal page-replacement algorithm has the lowest page fault rate.

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

Select correct option:

Page Fault (p190)

Page replacement

Paging

Segmentation

Following schemes allow efficient implementations of page tables EXCEPT

Select correct option:

Hashed Page Table

Hierarchical / Multilevel Paging

Inverted Page Table

Binary Page Table (p171) 29

Question # 1

We want a page replacement algorithm with the _____ page-fault rate.

Select correct option:

Highest

Lowest (p199)

Normal

None of the given

Question # 10

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

Select correct option:

Increases (p208)

Decreases

Sometimes increases and sometimes decreases

None of the given options

It is **not possible** to run a program whose size is greater than the size of the main memory.

Select correct option:

True

False (Possible with Virtual Memory Concept)

Question # 6

An optimal page-replacement algorithm has the lowest page fault rate of all algorithms.

Select correct option:

True (p200)

False

A solution to the critical section problem must satisfy the following requirements except:

Progress

Mutual Exclusion

Bounded Waiting

Race Condition (p99)

The solution to Critical Section Problem is : Mutual Exclusion, Progress and Bounded Waiting.

Question # 10

A process is said to be in critical section if it executes code that manipulates shared data.

True

False

Question No: 7

Logical address is generated by:

CPU (Reference) 30

Compiler

Hard disk

None of these

Consider a UNIX system with **threshold priority** of 125. Assume two processes, P1 and P2, which came into the system at the same time. P1 has a **nice value** of 15 and 'recent CPU usage' 45 ticks. P2 has a nice value of 10 and „recent CPU usage“ 65 ticks. It is time for scheduling. Which of the two processes will be chosen for execution?

P1 because its recent CPU usage is less than that of P2's and, therefore, its priority is higher than P2's priority.

P2 because its nice value is smaller than that of P1's (Reference)

P2 because its priority number is smaller than that of P1's

P1 because its process ID is smaller than P2's process ID

None of the given choices

Question No: 2

What is spooling?

Ability of an OS to protect jobs from writing into the wrong memory location

Ability of an OS to do long term job scheduling

Ability of an OS to read jobs from cards onto the disk, and load a new job from the disk to empty memory partition

Ability of an OS to give priority to each job for execution

None of the given choices

■ Spooling is the process of writing the contents of a print job to a file on disk. This file is called a *pool file*.

When the job requests the printer to output a line, that line is copied into a system buffer and is written to the disk. When the job is completed, the output is actually printed. This form of processing is called spooling.

Spooling overlaps the I/O of one job with the computation of other jobs.

Spooling is also used for processing data at remote sites.

Spooling has a direct beneficial effect on the performance of the system.

Question No: 3

To a computer operating system, a thread is

Trace of system calls made by a process.

Identifiable computation unit with state executing a task

Input/output stream associated with a process

All of the given choices

None of the given choices

A thread is a basic unit of CPU utilization; it comprises a thread ID, a program counter, a register set, and a stack.

A thread is a flow of control within a process.

A thread is a unit of code that can be scheduled by the operating system.

Question No: 4

Which component ensures that a process can execute only within its own address space?

I/O device

Memory-addressing hardware (p80 OSC)

Timer

Virtual memory

None of the given choices

Segmented paging incurs less internal fragmentation than pure process-level paging.

True

False (Reference)

Ambiguous question

Question No: 2

The Multi-Level Feedback Queue (MLFQ) scheduling algorithm is the same as

Shortest-Job-First.

True

False (Reference)

Ambiguous question

a) In paging systems, external fragmentation cannot occur. **TRUE**

b) Race conditions cannot occur on a unprocessed. **FALSE**

c) SJF can be implemented as a priority algorithm, where the priority is determined by the arrival time of the job. **FALSE**

d) A process in the Ready state can only transition to Running or Exit states. **TRUE**

e) The two-phase locking protocol guarantees that concurrent transactions are deadlock-free.

FALSE

(References for a,b,c,d,e above)

Question # 6

A condition where a set of blocked processes each holding a resource and waiting to acquire a resource held by another process in the set is termed as _____.

Select correct option:

Deadlock (p128)

Starvation

Question # 7

Preventing a condition of _____ to happen, deadlocks can be prevented to happen.

Select correct option:

Deadlock Prevention

1. Mutual exclusion

2. Hold and Wait

3. No preemption

4. Circular Wait

Critical region

Circular wait (p134)

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Critical section

Question # 8

The following is NOT a classical problem of synchronization

Select correct option:

Bounded buffer problem

Reader writer problem

Dining philosopher's problem

Counting semaphore problem (p116)

Question # 9

The integer value of _____ semaphores can range over an unrestricted integer domain.

Select correct option:

There are two kinds of semaphores:

- Counting semaphore whose integer value can range over an unrestricted integer domain.

- Binary semaphore whose integer value cannot be > 1 ; can be simpler to implement.

Counting (p115)

Binary

Mutex

Bounded buffer

Question # 10

The condition in which a set $\{P_0, P_1 \dots P_n\}$ of waiting processes must exist such that P_0 is waiting for a resource that is held by P_1 , P_1 is waiting for a resource that is held by P_2 , and so on, P_{n-1} is waiting for a resource held by P_n , and P_n is waiting for a resource held by P_0 . This condition is known as _____.

Select correct option:

Mutual exclusion

Hold and wait

No preemption

Circular wait (Reference)

Question # 8

Deadlock detection and recovery technique is exactly similar to deadlock avoidance technique to handle deadlock in the system.

Select correct option:

-True

-False

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Question # 9

In Overlay technique, we can overload any part of the program with the part of the program required needed recently.

Select correct option:

True

False

Question No: 8

Operating system is manages the use of hardware among the various application programs for the users.

True

False 33

Question No: 9

In shortest job first algorithm CPU schedule process according to the,

Priority wise

CPU Burst

Distribute CPU resources equally among all processes

All of these

Question No: 5

In UNIX, a file descriptor is:

A positive integer associated with an open file. Its value describes the type of data in the file and the file location on disk.

A positive integer used to index the per process file descriptor table to eventually access an open file's attributes, including its location.

A positive integer used to index the per process file descriptor table, which points to the anode of the file containing the executable image of the process on disk.

All of the given choices

None of the given choices

A system call

Is an entry point into the kernel code?

Allows a program to request a kernel service

Is a technique to protect I/O devices and other system resources

All of the these

Software may trigger an interrupt by executing a special operation called a system call (also called a monitor call).

Addresses generated *relative* to part of program, not to start of physical memory are

Virtual

Physical

Relocatable

Symbolic

The size of a page is defined by _____.

Select correct option:

CPU

Page Table

Physical Memory

Logical Memory

1. What scheduling policy will you use for each of the following cases? Explain your reasons for choosing them.

a. The processes arrive at large time intervals

b. The system's efficiency is measured by the percentage of jobs completed.

c. All the processes take almost equal amounts of time to complete. 34

Ans:

- a. FCFS
- b. STF
- c. FCFS or RR

More MCQs on Operating System

Multiple Choice Questions On Operating System Part-1

- 1) Routine is not loaded until it is called. All routines are kept on disk in a Relocatable load format. The main program is loaded into memory & is executed. This type of loading is called _____. 1 Static loading 2 Dynamic loading 3 Dynamic linking 4 Overlays Ans) 3
- 2) Which of the following is crucial time while accessing data on the disk? 1 Seek time 2 Rotational time 3 Transmission time 4 Waiting time Ans) 1 3) the host repeatedly checks if the controller is busy until it is not It is in a loop that status register's busy bit becomes clear. This is called _____ and a mechanism for the hardware controller to notify the CPU that it is ready is called _____. 1 Interrupt and Polling 2 Polling and Spooling 3 Polling and Interrupt 4 Deadlock and Starvation Ans) 3 4) Unix Operating System is an _____. 1 Time Sharing Operating System 2 Multi-User Operating System 3 Multi-tasking Operating System 4 All the Above Ans) 4 5) which of the following memory allocation scheme suffers from External fragmentation? 1 Segmentation 2 Pure demand paging 35

3 Swapping 4 Paging Ans) 1 6) Information about a process is maintained in a _____. 1 Stack 2 Translation Look aside Buffer 3 Process Control Block 4 Program Control Block
Ans) 3 7) Distributed OS works on the _____ principle. 1 File Foundation 2 Single system image 3 Multi system image 4 Networking image Ans) 2 8) the problem of fragmentation arises in _____. 1 Static storage allocation 2 Stack allocation storage 3 Stack allocation with dynamic binding 4 Heap allocation Ans) 4 9) Which file system does DOS typically use ? 1 FAT16 2 FAT32 3 NTFS 4 WNFS Ans) 1 10) the program is known as _____ which interacts with the inner part of called kernel. 1 Compiler 2 Device Driver 3 Protocol 4 Shell Ans) 4 11) the time taken by the disk arm to locate the specific address of a sector for getting information is called _____. 1 Rotational Latency 2 Seek Time 3 Search Time 4 Response Time Ans) 2 36

12) Which file system does Windows 95 typically use ? 1 FAT16 2 FAT32 3 NTFS 4 LMFS
Ans) 2 13) Identify the odd thing in the services of operating system. 1 Accounting 2
Protection 3 Error detection and correction 4 Dead lock handling Ans) 3 14) Cryptography
technique is used in _____. 1 Polling 2 Job Scheduling 3 Protection 4 File Management
Ans) 3 15) Which of the following is not advantage of multiprogramming? 1 Increased
throughput 2 Shorter response time 3 Decreased operating system overhead 4 Ability to
assign priorities to jobs Ans) 3 16) In _____ OS, the response time is very critical. 1
Multitasking 2 Batch 3 Online 4 Real-time Ans) 4 17) An optimal scheduling algorithm in
terms of minimizing the average waiting time of a given set of processes is _____. 1
FCFS scheduling algorithm 2 Round robin scheduling algorithm 3 Shortest job - first
scheduling algorithm 4 None of the above Ans) 3 18) Real time systems are _____. 1
Primarily used on mainframe computers 37

2 Used for monitoring events as they occur 3 Used for program development 4 Used for real time interactive users Ans) 2 19) Which technique was introduced because a single job could not keep both the CPU and the I/O devices busy? 1 Time-sharing 2 SPOOLing 3 Preemptive scheduling 4 Multiprogramming Ans) 4 20) Inter process communication can be done through _____. 1 Mails 2 Messages 3 System calls 4 Traps Ans) 2 21) In Priority Scheduling a priority number (integer) is associated with each process. The CPU is allocated to the process with the highest priority (smallest integer = highest priority). The problem of, Starvation ? low priority processes may never execute, is resolved by _____. 1 Terminating the process. 2 Aging 3 Mutual Exclusion 4 Semaphore Ans) 2 22) CPU performance is measured through _____. 1 Throughput 2 MHz 3 Flaps 4 None of the above Ans) 1 23) PCB = 1 Program Control Block 2 Process Control Block 3 Process Communication Block 4 None of the above Ans) 2 24) Software is a program that directs the overall operation of the computer, facilitates its use and interacts with the user. What are the different types of this software ? 1 Operating system 38

2 Language Compiler 3 Utilities 4 All of the above Ans) 4 25) A _____ is a software that manages the time of a microprocessor to ensure that all time critical events are processed as efficiently as possible. This software allows the system activities to be divided into multiple independent elements called tasks. 1 Kernel 2 Shell 3 Processor 4 Device Driver Ans) 1 26) The primary job of the operating system of a computer is to _____. 1 Command Resources 2 Manage Resources 3 Provide Utilities 4 Be user friendly Ans) 2 27) With the round robin CPU scheduling in a time-shared system _____. 1 Using very large time slice degenerates in to first come first served algorithm 2 Using extremely small time slices improve performance 3 Using extremely small time slices degenerate in to last in first out algorithm 4 Using medium sized time slices leads to shortest request time first algorithm Ans) 1 28) Which of the following is a criterion to evaluate a scheduling algorithm? 1 CPU Utilization: Keep CPU utilization as high as possible. 2 Throughput: number of processes completed per unit time. 3 Waiting Time: Amount of time spent ready to run but not running. 4 All of the above Ans) 4 29) Which of the following is contained in Process Control Block (PCB)? 1 Process Number 2 List of Open files 3 Memory Limits 4 All of the Above Ans) 4 30) Super computers typically employ _____. 1 Real time Operating system 2 Multiprocessors OS 3 desktop OS 39

4 None of the above Ans) 2 31) Round robin scheduling is essentially the preemptive version of _____. 1 FIFO 2 Shortest job first 3 Shortes remaining 4 Longest time first Right Ans) 1 32) A page fault occurs 1 when the page is not in the memory 2 when the page is in the memory 3 when the process enters the blocked state 4 when the process is in the ready state Right Ans) 1 33) Which of the following will determine your choice of systems software for your computer ? 1 Is the applications software you want to use compatible with it ? 2 Is it expensive ? 3 Is it compatible with your hardware ? 4 Both 1 and 3 Right Ans) 4 34) Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); ---; signal(S);signal(Q) and wait(Q); wait(S);---;signal(Q);signal(S); respectively. The above situation depicts a _____. 1 Semaphore 2 Deadlock 3 Signal 4 Interrupt Right Ans) 2 35) What is a shell ? 1 It is a hardware component 2 It is a command int:gasp:erpreter 3 It is a part in compiler 4 It is a tool in CPU scheduling Right Ans) 2 36) Routine is not loaded until it is called. All routines are kept on disk in a relocatable load format. The main program is loaded into memory & is executed. This type of loading is called _____. 1 Static loading 2 Dynamic loading 3 Dynamic linking 4 Overlays 40

Right Ans) 3 37) In the blocked state 1 the processes waiting for I/O are found 2 the process which is running is found 3 the processes waiting for the processor are found 4 none of the above Right Ans) 1 38) What is the memory from 1K - 640K called ? 1 Extended Memory 2 Normal Memory 3 Low Memory 4 Conventional Memory Right Ans) 4 39) Virtual memory is _____. 1 An extremely large main memory 2 An extremely large secondary memory 3 An illusion of extremely large main memory 4 A type of memory used in super computers. Right Ans) 3 40) The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____. 1 Editors 2 Compilers 3 System Call 4 Caching Right Ans) 3 41) If the Disk head is located initially at 32, find the number of disk moves required with FCFS if the disk queue of I/O blocks requests are 98,37,14,124,65,67. 1 310 2 324 3 315 4 321 Right Ans) 4 42) Multiprogramming systems _____. 1 Are easier to develop than single programming systems 2 Execute each job faster 3 Execute more jobs in the same time 4 Are used only on large main frame computers Right Ans) 3 41

43) Which is not the state of the process ? 1 Blocked 2 Running 3 Ready 4 Privileged Right Ans) 4 44) The solution to Critical Section Problem is : Mutual Exclusion, Progress and Bounded Waiting. 1 The statement is false 2 The statement is true. 3 The statement is contradictory. 4 None of the above Right Ans) 2 45) The problem of thrashing is effected scientifically by _____. 1 Program structure 2 Program size 3 Primary storage size 4 None of the above Right Ans) 1 46) The state of a process after it encounters an I/O instruction is _____. 1 Ready 2 Blocked/Waiting 3 Idle 4 Running Right Ans) 2 47) The number of processes completed per unit time is known as _____. 1 Output 2 Throughput 3 Efficiency 4 Capacity Right Ans) 2 48) _____ is the situation in which a process is waiting on another process, which is also waiting on another process ... which is waiting on the first process. None of the processes involved in this circular wait are making progress. 1 Deadlock 2 Starvation 3 Dormant 4 None of the above Right Ans) 1 49) Which of the following file name extension suggests that the file is Backup copy of another file ? 42

1 TXT 2 COM 3 BAS 4 BAK Right Ans) 4 50) Which technique was introduced because a single job could not keep both the CPU and the I/O devices busy? 1 Time-sharing 2 SPOOLing 3 Preemptive scheduling 4 Multiprogramming Right Ans) 4 51) A critical region 1 is a piece of code which only one process executes at a time 2 is a region prone to deadlock 3 is a piece of code which only a finite number of processes execute 4 is found only in Windows NT operation system Right Ans) 1 52) The mechanism that bring a page into memory only when it is needed is called _____. 1 Segmentation 2 Fragmentation 3 Demand Paging 4 Page Replacement Right Ans) 3 53) PCB = 1 Program Control Block 2 Process Control Block 3 Process Communication Block 4 None of the above Right Ans) 2 54) FIFO scheduling is _____. 1 Preemptive Scheduling 2 Non Preemptive Scheduling 3 Deadline Scheduling 4 Fair share scheduling Right Ans) 2 55) Switching the CPU to another Process requires to save state of the old process and loading new process state is called as _____. 1 Process Blocking 2 Context Switch 43

3 Time Sharing 4 None of the above Right Ans) 2 56) Which directory implementation is used in most Operating System? 1 Single level directory structure 2 Two level directory structure 3 Tree directory structure 4 Acyclic directory structure Right Ans) 3 57) The Banker's algorithm is used 1 to prevent deadlock in operating systems 2 to detect deadlock in operating systems 3 to rectify a deadlocked state 4 none of the above Right Ans) 1 58) A thread 1 is a lightweight process where the context switching is low 2 is a lightweight process where the context switching is high 3 is used to speed up paging 4 none of the above Right Ans) 1 59) _____ is a high level abstraction over Semaphore. 1 Shared memory 2 Message passing 3 Monitor 4 Mutual exclusion Right Ans) 3 60) A tree structured file directory system 1 allows easy storage and retrieval of file names 2 is a much debated unnecessary feature 3 is not essential when we have millions of files 4 none of the above Right Ans) 1 1) A 20-bit **address bus** allows access to a memory of capacity
(a) 1 Mb (b) 2 Mb (c) 32Mb (d) 64 Mb

Answer:- a).

2) On-chip cache has 44

- (a) Lower access time than RAM (b) larger capacity than off chip cache
(c) Its own data bus (d) become obsolete

Answer:- a).

3) A RAID system is useful because

- (a) It increases processor speed (b) increases disk storage capacity
(c) Increases disk storage capacity and availability (d) increases OS efficiency

Answer:- c).

4) Multiprogramming refers to

- (a) Having several programs in RAM at the same time (b) multitasking
(c) Writing programs in multiple languages (d) none of the previous

Answer:- a).

5) Multiprocessing is

- (a) Same as Multitasking (b) same as multiprogramming
(c) Multiuser (d) involves using more than one processor at the same time

Answer:- d).

6) Timesharing is the same as

- (a) Multitasking (b) multiprogramming
(c) Multiuser (d) none of the previous

Answer:- a).

7) The average memory access time for a machine with a cache hit rate of 90% where the cache access time is 10ns and the memory access time is 100ns is

- (a) 55ns (b) 45ns (c) 90ns (d) 19ns

Answer:- d).

8) The memory address register is used to store

- (a) Data to be transferred to memory
(b) Data that has been transferred from memory
(c) The address of a memory location
(d) An instruction that has been transferred from memory.

Answer:- c).

9) The memory data register is used to store

- (a) Data to be transferred to or from memory
(b) Data to be transferred to the stack
(c) The address of a memory location
(d) An instruction that has been transferred from memory

Answer:- a).

10) In accessing a disk block the longest delay is due to 45

(a) Rotation time (b) seek time (c) transfer time (d) clock speed.

Answer :- b).

11) Consider the following set of processes, with the length of the CPU-burst time given in milliseconds:

Process Burst Time Priority

P1 10 3

P2 1 1

P3 2 3

P4 1 4

P5 5 2

Assume that P1 is at the head of the ready queue and P5 is at the tail, and ignore the time for changing inter-processes. Using Round Robin scheduling algorithm (where the quantum $q = 1\text{ms}$) which is the average turnaround time?

a) $t_{av} = 12\text{ms}$ b) $t_{av} = 9.2\text{ms}$ c) $t_{av} = 7\text{ms}$ d) $t_{av} = 10.8\text{ms}$ e) None of these

Answer:- b)

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

A) $t_Q = 15\text{ms}$ **B)** $t_Q = 40\text{ms}$ **C)** $t_Q = 45\text{ms}$ **D)** $t_Q = 50\text{ms}$

Answer:- a).

13) Consider a swapping system in which memory consists of the following hole sizes in memory order:

H0 H1 H2 H3 H4 H5 H6 H7

10K 4KB 20KB 18KB 7KB 9KB 12KB 15KB

and a successive segment request of

a) 12 KB

b) 10KB

c) 9KB

Which of the following sentences is/are true?

a) First Fit algorithm allocates H2, H0, H3 for the mentioned request.

b) Best Fit algorithm allocates H2, H0, H3 for the mentioned request.

c) First Fit algorithm allocates H2, H6, H7 for the mentioned request.

d) Worst Fit algorithm allocates H2, H3, H6 for the mentioned request.

Answer:- a).

14) Page fault occurs when

a) The page is corrupted by application software.

b) The page is in memory.

c) The page is not in memory

d) One tries to divide a number by 0.

Answer:- c) 46

15) Determine the number of page faults when references to page occur in the following order: 1,2,4,5,2,1,2,4. assume that the main memory can accommodate 3 pages and the main memory already has the pages 1 and 2, with page 1 having been brought earlier than page 2. (LRU algorithm is used)

a) 3 b) 5 c) 4 d) none of these.

Answer:- c)

16) The page replacement policy that sometimes leads to more page faults when the size of the memory is increased is

a) FIFO b) LRU c) no such policy exists d) none of the above.

Answer:- a).

17) DIJKSTRA'S banking algorithm in an operating system, solves the problem of

a) Deadlock avoidance b) deadlock recovery

c) Mutual exclusion d) context switching.

Answer:- a)

18) Necessary conditions for deadlock are

a) Non pre-emption and circular wait b) mutual exclusion and partial allocation

c) Both a and b d) none of the above.

Answer:- c).

19) At a particular time, the value of counting semaphore is 10. it will become 7 after

a) 3 V operations b) 5P operations c) 5V and 2P operations

d) 13 P and 10 V operations.

Answer:- d).

20) Semaphores are used to solve the problem of

a) Race condition b) process synchronization

c) Both of above d) none of the above.

Answer: – b).

21) The size of virtual memory depends on

a) The size of the data bus b) the size of main memory

c) The size of address bus d) none of the above.

Answer:- c).

22) Suppose that a process is in 'BLOCKED' state waiting for some I/O service. When the service is completed, it goes to the

a) RUNNING state b) READY state c) SUSPENDED state d) TERMINATED state.

Answer:- b)

23) In real time operating systems, which of the following is the most suitable scheduling scheme?

a) round- robin b) FCFS c) pre-emptive scheduling d) random scheduling

answer:- c). 47

24) Which of the following is well suited for batch processing.

- a) Process control b) video game control
- c) Preparing pay bills of employees d) none of the above.

Answer:- c).

25) Which of the following page replacement algorithms suffers from belady's anomaly?

- a) Optimal replacement b) LRU
- c) FIFO d) both optimal replacement and FIFO.

Answer:- c).

True or False, circle T or F.

T a. A binary semaphore takes on numerical values 0 and 1 only.

T b. An atomic operation is a machine instruction or a sequence of instructions that must be executed to completion without interruption.

F c. Deadlock is a situation in which two or more processes (or threads) are waiting for an event that will occur in the future. (cannot occur)

T d. Starvation is a situation in which a process is denied access to a resource because of the competitive activity of other, possibly unrelated, processes. (denied access indefinitely, possibly infinitely)

F e. While a process is blocked on a semaphore's queue, it is engaged in busy waiting.

T f. Circular waiting is a necessary condition for deadlock, but not a sufficient condition. (a condition for the deadlock to occur)

F g. Mutual exclusion can be enforced with a general semaphore whose initial value is greater than 1. (equal to 1)

T F h. External fragmentation can occur in a paged virtual memory system. (question was too vague, either answer was accepted)

T i. External fragmentation can be prevented (almost completely) by frequent use of compaction, but the cost would be too high for most systems.

T j. A page frame is a portion of main memory.

F k. Once a virtual memory page is locked into main memory, it cannot be written to the disk.

(A locked page cannot be swapped out, but "swapped out" is more than "written to".)

F l. Pages that are shared between two or more processes can never be swapped out to the disk.

(sharing does not require locking)

F m. The allocated portions of memory using a buddy system are all the same size.

F n. Demand paging requires the programmer to take specific action to force the operating system to load a particular virtual memory page.

T o. Prepaging is one possibility for the fetch policy in a virtual memory system.

T p. The resident set of a process can be changed in response to actions by other processes.

F q. The working set of a process can be changed in response to actions by other processes.

F r. The translation look aside buffer is a software data structure that supports the virtual memory address translation operation. (hardware)

F s. In a symmetric multiprocessor, threads can always be run on any processor. (from the hardware's point of view only, this would be true, but the OS and user can put restrictions on processor assignment.)

F t. Thrashing will never be a problem if the system has 1 GB of real memory.