

CS604 Quiz #2 Fall 2012 Solved With Reference

1..... Is caused due to unavailability of resources

Ans: Starvation Lec#23 p#112

2 The type of semaphore, whose value can not be greater than 1, is.....

Ans: Binary Semaphore Lec#24 p#114

3..... Separates logical memory from physical memory

Ans: Virtual Memory Lec#37 p# 185

4..... Register is used to point the smallest memory address of a process and its size.

Ans: Limit Register Lec# 31 p#158

5 There is no dynamic address translation in case of

Ans: MFT (Multi-Programming with Fixed Tasks) Lec#31 p#159

6 If HR is hit ratio and MR is miss ratio then effective access time is given by.....

$T_{\text{effective}} = HR (TTLB + T_{\text{mem}}) + MR (TTLB + 2T_{\text{mem}})$ Lec#33 p#167

7 Variation of fork () system call used by UNIX is.....

Ans: vfork () Virtual fork Lec#38 p# 193

8 FIFO page replacements has lowest page fault rates

Ans: False Correct Optimal Algorithm Lec#38 p#199

9 Correct about LRU is

Ans: Replacement with least recently used page Lec#39 p#199

Physical memory is broken into fixed sized blocks called.....

Ans: Frames Lec#32 p#162

You can use the rm file1 command to _____ file1

Retrieve

Remove

Make

modify

_____ commands in Linux is used to copy file

ls

cp

mv

mkdir

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

gcc program.c -o FirstPrgram

gcc -o FirstProgram program.c

gcc -z FirstProgram program.c

gcc program.c -m FirstPrgram

Question # 1 of 10 (Start time: 04:38:33 PM) Total Marks: 1

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

Select correct option:

Long term

Short term

Medium term

Swapper

Quiz Start Time: 04:38 PM Time Left 84
sec(s)

Question # 2 of 10 (Start time: 04:38:49 PM) Total Marks: 1

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

Select correct option:

- ☒ 0
- ☐ 1
- ☐ 2
- ☐ 3

Question # 6 of 10 (Start time: 05:16:16 PM) Total Marks: 1

_____ displays information about the top processes.

Select correct option:

- ☐ ls
- ☐ cs
- ☒ top
- ☐ cd

Question # 7 of 10 (Start time: 05:16:27 PM) Total Marks: 1

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

Select correct option:

- ☐ File
- ☒ Screen
- ☐ Printer
- ☐ Scanner

Question # 8 of 10 (Start time: 05:17:51 PM) Total Marks: 1

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

Select correct option:

- ☒ fork
- ☐ exec
- ☐ wait
- ☐ exit

Question # 3 of 10 (Start time: 05:24:38 PM) Total Marks: 1

_____ commands in Linux helps to create a new directory.

Select correct option:

ls

cp

mv

mkdir

Cooperating processes never share any data, code, memory or state.
Select correct option:

True

False

_____ command display the status of a process.
Select correct option:

ls

ps

gcc

cat

Question # 7 of 10 (Start time: 05:26:51 PM) Total Marks: 1
The manual pages can be read in Linux using _____ command.
Select correct option:

man

wan

desc

help

Question # 8 of 10 (Start time: 05:27:40 PM) Total Marks: 1
In Unix/ Linux, by default the standard input file is attached to the _____
Select correct option:

Mouse

Keyboard

Light pen

Joystick

Question # 10 of 10 (Start time: 05:27:56 PM) Total Marks: 1

Taking the CPU from one process and giving the CPU to another process is termed as
Select correct option:

Context Switching

Dispatching

Swapping

Tracking

Question # 2 of 10 (Start time: 05:29:04 PM) Total Marks: 1

Shared libraries and kernel modules are stored in _____ directory.
Select correct option:

/bin

/dev

/boot

/lib

Question # 4 of 10 (Start time: 05:30:18 PM) Total Marks: 1

In Unix/ Linux, by default the standard output file is attached to the _____
Select correct option:

File

Screen

Printer

Scanner

Question # 7 of 10 (Start time: 05:31:17 PM) Total Marks: 1

Swapper is also termed as Short term scheduler.
Select correct option:

True

False

Question # 8 of 10 (Start time: 05:32:04 PM) Total Marks: 1

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

Select correct option:

Long term

Short term

Medium term

Swapper

Question # 10 of 10 (Start time: 05:32:27 PM) Total Marks: 1

You can use the mv file1 file2 command to move _____

Select correct option:

file1 to file2.

file 2 to file 1

this command will not work for moving files

None of the option is correct.

Question # 2 of 10 (Start time: 05:36:33 PM) Total Marks: 1

_____ is also called Swapper.

Select correct option:

Long term

Short term

Medium term

Swap space

Question # 3 of 10 (Start time: 05:36:44 PM) Total Marks: 1

_____ directory includes essential system boot files including the kernel image.

Select correct option:

/bin

/boot

/dev

/etc

Question # 4 of 10 (Start time: 05:38:03 PM) Total Marks: 1

Swapper is also termed as Short term scheduler.

Select correct option:

True

False

Question # 5 of 10 (Start time: 05:38:12 PM) Total Marks: 1

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

Select correct option:

0

1

2

3

Question # 6 of 10 (Start time: 05:38:30 PM) Total Marks: 1

_____ command display the status of a process.

Select correct option:

ls

ps

gcc

cat

Question # 9 of 10 (Start time: 05:39:03 PM) Total Marks: 1

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

Select correct option:

fork

exec

wait

exit

Question # 3 of 10 (Start time: 05:41:08 PM) Total Marks: 1

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

Select correct option:

read

write

open

fork

Question # 4 of 10 (Start time: 05:41:56 PM) Total Marks: 1

A Process 'A' that has finished working but its parent process has also finished its execution. In this state the process 'A' will be called as _____ process.

Select correct option:

Child

Thread

Zombie

Fork

Question # 5 of 10 (Start time: 05:42:40 PM) Total Marks: 1

A parent process calling _____ system call will be suspended until children process terminates.

Select correct option:

wait

fork

exit

exec

Question # 6 of 10 (Start time: 05:43:57 PM) Total Marks: 1

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

Select correct option:

Pipe

Read

Write

Open

Question # 7 of 10 (Start time: 05:45:23 PM) Total Marks: 1

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

Select correct option:

0

1

2

3

1. Linux OS can support multiple users at a time

a) True

b) False

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

a) hardware, software application

b) Kernel, hardware

c) Dos, Windows

d) Windows, Kernel

3. The major advantage of multi-programming system is

a) More than one jobs can be processed at a given time

b) CPU utilization can be increased

c) Jobs can be completed quickly

d) All of the options are correct

4. The main characteristic of a Real time system is

a) Efficiency

b) Large Virtual Memory

c) Large secondary storage device

d) Usability

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

a) Kernel

b) Shell

c) Signal

d) API

6. I/O instructions are Privileged Instructions.

a) True

b) False

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

a) 1

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

9. rm and rmdir commands are used to _____ directory.

- a) Create
- b) Move
- c) Remove
- d) Modify

10. You can use the **mv file1 file2** command to move _____

- a) file1 to file2.
- b) file 2 to file 1
- c) this command will not work for moving files
- d) None of the option is correct.
- e) Both option **a** and **b** are correct

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

- a) Context Switching
- b) Dispatching
- c) Swapping
- d) Tracking

12. _____ scheduler is also called Swapper.

- a) Long term
- b) Short term

c) **Medium term**

d) Swap space

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

a) **Direct**

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**

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

a) 1

b) 2

c) 3

d) **0**

18. If the fork system call fails, it returns

a) 1

b) **-1**

c) 2

d) 0

19. When a process opens its first file explicitly it will get descriptor number _____

a) 1

b) 2

c) **3**

d) **4**

Question # 1 of 10 (Start time: 03:05:46 PM) Total Marks: 1

The problem with priority scheduling algorithm is _____.

Select correct option:

Deadlock

Starvation

Aging

Nice value

Quiz Start Time: 03:05 PM Time Left 87

sec(s)

Question # 2 of 10 (Start time: 03:06:29 PM) Total Marks: 1

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

Select correct option:

Little's Formula

Deterministic Modeling

Queuing Theory

Queuing analysis

Quiz Start Time: 03:05 PM Time Left 87

sec(s)

Question # 3 of 10 (Start time: 03:06:41 PM) Total Marks: 1

_____ scheduling allows a process to move between queues.

Select correct option:

Round Robin

First Come First Serve

Multilevel Feedback Queue

Shortest Remaining Time First

Question # 4 of 10 (Start time: 03:07:33 PM) Total Marks: 1

Batch programs are usually _____ programs.

Select correct option:

Interactive

Non-interactive

Foreground

Preemptive

Question # 5 of 10 (Start time: 03:08:04 PM) Total Marks: 1

First _____ entries in Per Process File Descriptor Table are used as soon as the process is created.

Select correct option:

1

2 may be

3

4 not sure

Question # 6 of 10 (Start time: 03:08:11 PM) Total Marks: 1

Round Robin algorithm is most suitable for _____.

Select correct option:

Time sharing system

Real time systems and batch systems

Running Batch programs

Expert system

Question # 7 of 10 (Start time: 03:08:38 PM) Total Marks: 1

The scheduling of _____ are done by the operating system.

Select correct option:

Kernel threads

User level threads

Both Kernel and User Level thread

None of the give option

Question # 8 of 10 (Start time: 03:09:39 PM) Total Marks: 1

_____ is used in real time operating systems.

Select correct option:

Non-preemptive scheduling not sure

Preemptive scheduling

Dispatching scheduling

FCFS scheduling

Question # 9 of 10 (Start time: 03:10:59 PM) Total Marks: 1

Question # 10 of 10 (Start time: 03:11:12 PM) Total Marks: 1

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. Not sure

FCFS

RR Scheduling

Question # 1 of 10 (Start time: 03:12:41 PM) Total Marks: 1

The nice value helps in assigning _____ to a process.

Select correct option:

Priority

Weight

Time

Scheduling

Question # 2 of 10 (Start time: 03:13:00 PM) Total Marks: 1

All Threads within a process share the _____ address space.

Select correct option:

Same

Different

Question # 3 of 10 (Start time: 03:13:33 PM) Total Marks: 1

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

Select correct option:

File

Screen

Printer

Scanner

Question # 4 of 10 (Start time: 03:13:57 PM) Total Marks: 1

_____ integer shows the highest priority of a process in CPU scheduling
Select correct option:

Small

Large

Question # 6 of 10 (Start time: 03:15:33 PM) Total Marks: 1

_____ scheduling allows a process to move between queues.
Select correct option:

Round Robin

First Come First Serve

Multilevel Feedback Queue

Shortest Remaining Time First

Question # 4 of 10 (Start time: 03:33:07 PM) Total Marks: 1

POSIX is a standard developed by _____

Select correct option:

ANSI

IEEE

ISO

ACM

Question # 5 of 10 (Start time: 03:33:16 PM) Total Marks: 1

The nice value helps in assigning _____ to a process.

Select correct option:

Priority

Weight

Time

Scheduling

Question # 7 of 10 (Start time: 03:33:34 PM) Total Marks: 1

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

Select correct option:

nice

cmd

cat

grep

Question # 9 of 10 (Start time: 03:33:57 PM) Total Marks: 1

_____ integer shows the highest priority of a process in CPU scheduling
Select correct option:

Small

Large

Question # 10 of 10 (Start time: 03:34:07 PM) Total Marks: 1

The scheduling of _____ are done by the operating system.
Select correct option:

Kernel threads

User level threads not sure

Both Kernel and User Level thread

None of the give option

Question # 1 of 10 (Start time: 03:35:26 PM) Total Marks: 1

_____ is a preemptive scheduling algorithm.
Select correct option:

First Come First Serve

Shortest Job First

Round Robin

None of these

Question # 2 of 10 (Start time: 03:35:53 PM) Total Marks: 1

Round Robin algorithm is most suitable for _____.
Select correct option:

Time sharing system

Real time systems and batch systems

Running Batch programs

Expert system

Question # 3 of 10 (Start time: 03:36:05 PM) Total Marks: 1

_____ command display the status of a process.

Select correct option:

ls

ps

gcc

cat

Question # 5 of 10 (Start time: 03:37:45 PM) Total Marks: 1

The nice value helps in assigning _____ to a process.

Select correct option:

Priority

Weight

Time

Scheduling

The scheduling of _____ are done by the operating system.

Select correct option:

Kernel threads

User level threads

Both Kernel and User Level thread

None of the give option

Kernel threads are supported directly by the operating system. The kernel performs the scheduling, creation, and management in

----- command display the status of a process.

Select correct option: **P # 71**

ls

ps

gcc

cat

In Unix/ Linux, by default the standard output file is attached to the _____
Select correct option:

4 **File** p # 55 not sure

Screen

Printer

Scanner

The priority of a process can be changed using _____ command.
Select correct option:

Nice p # 92

cmd

cat

grep

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.

FCFS

RR Scheduling

Question # 8 of 10 (Start time: 11:57:13 AM) Total Marks: 1
_____ is a preemptive scheduling algorithm.

Select correct option:

First Come First Serve p # 81

Shortest Job First

Round Robin

None of these

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

Select correct option:

Little's Formula p # 94

Deterministic Modeling

Queuing Theory

Queuing analysis

Quiz 2:-

The priorities of processes in the _____ group remain fixed.

Select correct option:

Kernel p # 91

User

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

Select correct option:

Shortest Job First

Shortest Remaining Time First

First Come First Serve P # 86

None of these

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

Select correct option:

Mouse

Keyboard not sure

Light pen

Joystick

A major problem with priority scheduling algorithms is _____.

Select correct option:

Deadlock

Aging

Starvation P # 84

None of these

Question # 9 of 10 (Start time: 12:06:28 PM) Total Marks: 1

_____ 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

Question # 10 of 10 (Start time: 12:07:53 PM) Total Marks: 1

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

Select correct option:

Little's Formula

Deterministic Modeling

Queuing Theory

Queuing analysis

quiz 3

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

Select correct option:

File

Screen not sure

Printer

Scanner

Round Robin algorithm is most suitable for _____.

Time sharing system 86

Real time systems and batch systems

Running Batch programs

Expert system

_____ scheduling algorithm can be preemptive or non-preemptive.
First Come First Serve

Shortest Job First P # 83

Round Robin

Priority

POSIX is a standard developed by _____

ANSI

IEEE

ISO not sure

ACM

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

Starvation

Deadlock

Aging

None of the these

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

write

open

fork

Question # 1 of 10 (Start time: 11:16:32 AM)

Kernel is responsible for scheduling the user level threads.

True

False

Question # 4 of 10 (Start time: 11:20:25 AM)

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

Little's formula

Deterministic theory

Queuing theory

Queuing analysis

Question # 7 of 10 (Start time: 11:23:08 AM)

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

None of these

Question # 9 of 10 (Start time: 11:25:06 AM)

The scheduling of _____ are done by the operating system.

Kernel threads

User level threads

Both

None of these

Question # 10 of 10 (Start time: 11:26:10 AM)

Round Robin algorithm is most suitable for _____.

Time sharing system

Real time systems and batch systems

Running batch programs

Expert system

The nice value helps in assigning _____ to a process.

Select correct option:

Priority

Weight

Time

Scheduling

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

True

False

Question No: 1 (Marks: 1) - Please choose one

The hardware mechanism that enables a device to notify CPU is called an -----

▶ Interrupt

▶ Signal

▶ Trap

▶ Process

Question No: 2 (Marks: 1) - Please choose one

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

▶ ll

▶ s

▶ ls

▶ none of the given options

Question No: 3 (Marks: 1) - Please choose one

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

▶ fork

▶ wait

▶ exec

▶ exit

Question No: 4 (Marks: 1) - Please choose one

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

▶ Symmetric

▶ Asymmetric

▶ Both symmetric and asymmetric

▶ None of the given options

Question No: 5 (Marks: 1) - Please choose one

----- command gives a snapshot of the current processes.

▶ ps

▶ top

▶ who

▶ ls

Question No: 6 (Marks: 1) - Please choose one

-----command to resume the execution of a suspended job in the foreground

▶ fg

▶ bg

▶ jobs

▶ kill

Question No: 7 (Marks: 1) - Please choose one

You can use the ----- command to display the status of suspended and background processes

▶ fg

▶ bg

▶ jobs

▶ kill

Question No: 8 (Marks: 1) - Please choose one

You can terminate a foreground process by pressing -----

▶ <Ctrl-A>

▶ <Ctrl-C>

▶ <Ctrl-Z>

▶ None of the given options

Question No: 9 (Marks: 1) - Please choose one
A time sharing system is

- ▶ Multi tasking
- ▶ Interactive
- ▶ **All of these**
- ▶ Multi user

Question No: 10 (Marks: 1) - Please choose one
The main characteristic of a Real time system is

- ▶ Efficiency
- ▶ Large Virtual Memory
- ▶ Large secondary storage device
- ▶ Usability

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

- ▶ **Long term**
- ▶ Short term
- ▶ Medium term
- ▶ Swapper

Question No: 13 (Marks: 1) - Please choose one
In indirect inter process communication, a sender _mention the name of the recipient.

- ▶ do
- ▶ **do not**

Question No: 14 (Marks: 1) - Please choose one
A _____is an integer variable that, apart from initialization is accessible only through two standard atomic operations: wait and signal.

- ▶ **Semaphore**
- ▶ Monitor
- ▶ Critical region
- ▶ Critical section

Question No: 15 (Marks: 1) - Please choose one
A semaphore that cause Busy-Waiting is termed as _____.

- ▶ **Spinlock**
- ▶ Monitor
- ▶ Critical region
- ▶ Critical section

Question No: 16 (Marks: 1) - Please choose one
The execution of critical sections must NOT be mutually exclusive

- ▶ True
- ▶ **False**

Question No: 17 (Marks: 1) - Please choose one

The performance of Round Robin algorithm does NOT depends heavily on the size of the time quantum.

▶ **True**

▶ False

Question No: 18 (Marks: 1) - Please choose one

The following requirement for solving critical section problem is known as _____.

“There exists a bound on the number of times that other processes are allowed to enter their critical sections after a process has made a request to enter its critical section and before that request is granted.”

▶ Progress

▶ **Bounded Waiting**

▶ Mutual Exclusion

▶ Critical Region

Question No: 19 (Marks: 1) - Please choose one

The critical section problem can be solved by the following except

▶ Software based solution

► **Firmware based solution**

- Operating system based solution
- Hardware based solution

Question No: 20 (Marks: 1) - Please choose one
_____ is also called Swapper.

- Swap space

► **Medium term scheduler**

- Short term scheduler
- Long term scheduler

MIDTERM EXAMINATION

Spring 2009

CS604- Operating Systems (Session - 1)

Question No: 1 (Marks: 1) - Please choose one

1 MB or 1 megabyte is equivalent to----

1024 bytes

1024² bytes (may be this)

1024³ bytes

1000000 bytes

Question No: 2 (Marks: 1) - Please choose one

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

User interface

Hardware

Kernel

None of the given options

Question No: 3 (Marks: 1) - Please choose one

-----has a hierarchical file system structure.

DOS

Windows

UNIX

None of the given options

Question No: 4 (Marks: 1) - Please choose one

You can use the -----command in UNIX to create a directory.
rmdir

mkdir

cp
gcc

Question No: 5 (Marks: 1) - Please choose one

Files that start with a ----- in UNIX/Linux directory structure are known as hidden files .

.(dot)

(hash)
/ (slash)
~ (tilt)

Question No: 6 (Marks: 1) - Please choose one

The creating process is called a----- process while the new processes are called the -----
-- of that process

None of the given options

Children, parent

Parent, children

Zombie, single

Question No: 7 (Marks: 1) - Please choose one

-----buffer places no practical limit on the size of the buffer

Bounded

Unbounded

Both Unbounded & bounded

Bounded

Unbounded

None of the given options

Question No: 8 (Marks: 1) - Please choose one

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

Pipes

BSD Sockets

Named pipe (FIFO)

None of the given options

Question No: 9 (Marks: 1) - Please choose one

A -----is an abstract key for accessing a file.

File descriptor
Input Redirection
Output Redirection
FIFO

Question No: 10 (Marks: 1) - Please choose one

----- command gives a snapshot of the current processes.

ps
top
who
ls

Question No: 11 (Marks: 1) - Please choose one

You can display all of the signals supported by your system, along with their numbers, by using the -----command

<Ctrl-A>
fg
jobs
kill -l

Question No: 12 (Marks: 1) - Please choose one

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

Dispatch latency
Scheduling
Context switching
None of the given options

Question No: 13 (Marks: 1) - Please choose one

First-Come, First-Served (FCFS) is a -----scheduling algorithm.

preemptive
non-preemptive
both preemptive and non- preemptive none of the given options

Question No: 14 (Marks: 1) - Please choose one

The Shortest-Job-First Scheduling algorithm can be

Preemptive only

non-preemptive only
preemptive or non-preemptive.
None of the given options

Question No: 15 (Marks: 1) - Please choose one

Preemptive -----scheduling is sometimes called shortestremaining-time-first scheduling.

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

Question No: 16 (Marks: 1) - Please choose one

The basic purpose of _____ is to help the users to utilize the hardware resources for completing different tasks in a simplified manner

Operating system
Application software
All Software
All of the given

Question No: 17 (Marks: 1) - Please choose one
OS helps manages the following except

Application software
Bus speed of the system
Memory
Virtual memory

Question No: 18 (Marks: 1) - Please choose one

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

Long term
Short term
Medium term
Swapper

Question No: 19 (Marks: 1) - Please choose one

A parent process calling _____ system call will be suspended until children process terminates.

wait
fork

exit
exec

Question No: 20 (Marks: 1) - Please choose one

n-process critical section problem can be solved by using

The bakery algorithm

Deterministic modeling
Analytic evaluation
None of above

1. Linux OS can support multiple users at a time

- a) True
- b) False

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

- a) hardware, software application
- b) Kernel, hardware
- c) Dos, Windows
- d) Windows, Kernel

3. The major advantage of multi-programming system is

- a) More than one jobs can be processed at a given time
- b) CPU utilization can be increased
- c) Jobs can be completed quickly

d) All of the options are correct

4. The main characteristic of a Real time system is

- a) Efficiency
- b) Large Virtual Memory
- c) Large secondary storage device
- d) Usability

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

- a) Kernel
- b) **Shell**
- c) Signal
- d) API

6. I/O instructions are Privileged Instructions.

- a) **True**
- b) False

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

_____ directory.

- a) /dev
- b) /boot
- c) /lib
- d) **/sbin**

9. rm and rmdir commands are used to _____ directory.

- a) Create
- b) Move
- c) **Remove**
- d) Modify

10. You can use the mv file1 file2 command to move _____

- a) **file1 to file2.**
- b) file 2 to file 1
- c) this command will not work for moving files
- d) None of the option is correct.
- e) Both option a and b are correct

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

- a) **Context Switching**
- b) Dispatching
- c) Swapping
- d) Tracking

12. _____ scheduler is also called Swapper.

- a) Long term
- b) Short term
- c) **Medium term**
- d) Swap space

13. A Process A that has finished working, as well as its parent process has also finished its execution. In this state the process A will be called as _____ process.

- a) **Child**
- b) Thread
- c) Zombie
- d) Fork

14. Bounded Buffer is a buffer of _____ size

- a) variable
- b) **fixed**

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

- a) **Direct**
- 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**

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

- a) 1
- b) 2
- c) 3
- d) 0**

18. If the fork system call fails, it returns

- a) 1
- b) -1**
- c) 2
- d) 0

20. In Unix/ Linux, by default the standard input file is attached to the _____

- a) Mouse
- b) Keyboard**
- c) Light pen
- d) Joystick

MIDTERM EXAMINATION

Spring 2009 CS604-Operating Systems (Session -1)CS604: QUIZES

Question # 1 of 10 (Start time: 06:17:33 PM) Total Marks: 1

Linux uses _____ directory to store system configuration files.

Select correct option:

- /bin
- /dev
- /boot
- /etc**

Question # 2 of 10 (Start time: 06:18:01 PM) Total Marks: 1

OS helps manages the following except

Select correct option:

- Application software
- Memory
- Virtual memory
- Bus speed of the system**

Question # 3 of 10 (Start time: 06:18:09 PM) Total Marks: 1

Linux OS can support multiple users at a time

Select correct option:

True

False

Question # 4 of 10 (Start time: 06:18:17 PM) Total Marks: 1

_____ directory includes essential system boot files including the kernel image.

Select correct option:

/bin

/boot

/dev

/etc

Question # 5 of 10 (Start time: 06:19:17 PM) Total Marks: 1

_____ command displays the contents of current working directory.

Select correct option:

ls

cs

mv

cp

Question # 6 of 10 (Start time: 06:20:29 PM) Total Marks: 1

Question # 7 of 10 (Start time: 06:20:37 PM) Total Marks: 1

You can use the rm file1 command to _____ file1.

Select correct option:

retrieve

remove

make

modify

Question # 9 of 10 (Start time: 06:21:25 PM) Total Marks: 1

Linux is only single user operating system

Select correct option:

True

False

Question # 10 of 10 (Start time: 06:21:35 PM) Total Marks: 1

_____ command is used to change the directory.

Select correct option:

ls

cp

cd

mv

Question # 1 of 10 (Start time: 05:04:51 PM) Total Marks: 1

The major advantage of multi-programming system is

Select correct option:

More than one jobs can be processed at a given time

CPU utilization can be increases

Jobs can be completed quickly

All of the options are correct

Question # 2 of 10 (Start time: 05:06:16 PM) Total Marks: 1

The basic purpose of _____ is to help the users to utilize the hardware resources for completing different tasks in a simplified manner.

Select correct option:

Operating system

Application software

All Software

All of the given

Question # 4 of 10 (Start time: 05:08:22 PM) Total Marks: 1

Linux uses _____ directory to store system configuration files.

Select correct option:

/bin

/dev

/boot

/etc

Question # 5 of 10 (Start time: 05:09:05 PM) Total Marks: 1

You can use the rm file1 command to _____ file1.

Select correct option:

retrieve

remove

make

Question # 6 of 10 (Start time: 05:09:41 PM) Total Marks: 1

DOS is a single user operating system.

Select correct option:

True

False

Question # 7 of 10 (Start time: 05:10:58 PM) Total Marks: 1

A time sharing system is

Select correct option:

Multi user

Multi tasking

Interactive

All of these

Question # 9 of 10 (Start time: 05:13:20 PM) Total Marks: 1

A program in execution is called a _____.

Select correct option:

Command

Process

Software

Compiler

Question # 10 of 10 (Start time: 05:14:24 PM) Total Marks: 1

_____ command is used to change the directory.

Select correct option:

ls

cp

cd

mv

Question # 1 of 10 (Start time: 06:17:33 PM) Total Marks: 1

Linux uses _____ directory to store system configuration files.

Select correct option:

/bin

/dev

/boot

/etc

Question # 2 of 10 (Start time: 06:18:01 PM) Total Marks: 1

OS helps manages the following except

Select correct option:

Application software

Memory

Virtual memory

Bus speed of the system

Question No: 2 (Marks: 1) - Please choose one

----- spend more time doing IO than computations

▶ short CPU bursts

▶ CPU bound processes

▶ **IO bound processes**

▶ None of the given options

With -----you use condition variables.

▶ Semaphores

▶ Read/Write Locks

▶ Swaps

► **Monitor**

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

- Directed graph
- Critical path

► **Resource allocation graph**

- Mixed graph

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

► **Virtual**

- Physical
- Relocatable
- Symbolic

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

- Compiler

► **Linker**

- Text editor
- Loader

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

► **Physical address space**

- Process address space
- None of the given options
- Logical address space

----- indicates size of the page table

- translation look-aside buffers
- Page-table length register (PTLR)

► **Page-table base register (PTBR)**

- Page offset

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

- protected
- shared
- legal

► **illegal**

Question No: 11 (Marks: 1) - Please choose one

In _____ allocation scheme free frames are equally divided among processes

► **Fixed Allocation**

- 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**

- Directory

The _____ method requires each file to occupy a set of contiguous blocks

on the disk.

► **Contiguous Allocation**

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

The basic purpose of _____ is to help the users to utilize the hardware resources for completing different tasks in a simplified manner

- Operating system
- Application software
- All Software

► **All of the given**

User mode can run the Privileged instructions

- True

► **False**

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

► **Busy waiting**

- Spinlock (Doubted)
- Critical section
- Mutex

The _____ requires that no reader will be kept waiting unless a writer has already obtained permission to use the shared object.

► **first readers-writers problem**

- second readers-writers problem
- third readers-writers problem
- fourth readers-writers problem

The process of holding at least one resource and waiting to acquire additional resources that are currently being held by other processes is known as

_____.

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

If a process continues to fault, replacing pages, for which it then faults and brings back in right away. This high paging activity is called _____.

- paging
- **thrashing**
- page fault
- CPU utilization

Banker's algorithm is used for _____

► **Deadlock avoidance**

- Deadlock detection
- Deadlock prevention
- Deadlock removal

A program cannot execute unless whole or necessary part of it resides in the main memory.

► **True not sure**

► False

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**

► Variable size

Intel 80386 used paged segmentation with _____ level paging.

► One

► **Two**

► Three

► Four

The logical address of Intel 80386 is _____

► 36 bits

► **48 bits**

► 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

The following requirement for solving critical section problem is known as

_____.

“There exists a bound on the number of times that other processes are allowed to enter their critical sections after a process has made a request to enter its critical section and before that request is granted.”

- ▶ Progress
- ▶ **Bounded Waiting**
- ▶ Mutual Exclusion
- ▶ Critical Region

When a process is rolled out of memory, it loses its ability to use the CPU (at least for a while). Describe another situation where a process loses its ability to use the CPU, but where the process does not get rolled out.

Where the Infinite loop starts it also be the cause to suspend the CPU from working situation to idle stat.

How can you achieve memory protection in paging?

memory protection in paging is achieved by associating protection bits with each page. these bits are associated with each page table entry and specify protection on the corresponding page.

What is the basic function of pipe system call?

the pipe system call creates a pipe and returns two file descriptors, one for reading and second for writing.

Provide names of common file structures.

FAT32

NTFS

Question No: 35 (Marks: 3)

What is the structure of Two-Level Page Table?

Ignoring CPU overhead, what are the three primary components of disk access time (the time from the request of a sector to the time that it is available to the CPU). Given a transfer of a single sector, rank them according to their relative average cost.

Question No: 37 (Marks: 3)

Calculate the **Average Waiting Time** for four processes. Assume that Processes come in the sequence of P1,P2,P4, P3 at time=0 and scheduling algorithm applied is FCFS.

Processes CPU Burst

P1 4

P2 1

P3 3

P4 2

Question No: 38 (Marks: 3)

What do you think that why Main Memory is kept as a volatile memory and why not a permanent storage device?

In my view the Main memory is volatile because it has to maintain current and pending jobs to do till job done it kept data then transfers to the permanent storage device but the permanent storage has to only store the data so that's why data can't be on stack always all data can't be in working.

Question No: 39 (Marks: 5)

Briefly explain Thrashing as it pertains to main memory management.

A process is thrashing if it is spending more time paging than executing.

Thrashing results in severe performance problems: low CPU utilization, high disk utilization, low utilization of other I/O devices.

Question No: 40 (Marks: 5)

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

►context switching

►scheduling

►quantum period

►latency

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

►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 (Marks: 1) - Please choose one

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

►2

►3

►4

►5

Question No: 12 (Marks: 1) - Please choose one

_____ 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

►Directory

►Common Group

►Access Permission

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

►Soft

None of the given options

►Hard

►Soft or Hard

►Soft or Hard

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

►Contiguous Allocation

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

Which part of the computer system helps in managing the file and memory management system?

▶Operating System

- ▶Device Drivers
- ▶Application Software
- ▶Hardware

Which of the following is correct definition for wait operation?

```
▶wait(S) {  
while(S<=0)  
; // no o  
S--;  
}
```

```
▶wait(S) {  
S++;  
}
```

```
▶wait(S) {  
while(S>=0)  
; // no op  
S--;  
}
```

```
▶wait(S) {  
S--;  
}
```

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 are correct

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

▶True

▶False

If a process continues to fault, replacing pages, for which it then faults and brings back in right away. This high paging activity is called _____.

▶paging

▶thrashing

▶page fault

▶CPU utilization

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

Overlays are implemented by the _____

►Operating system

►Programmer

►Kernel

►Shell

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

►True

►False

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

►True (not sure)

►False

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

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

►Cycle

►Graph

►Edge

►Node

Intel is basically designed for following Operating Systems except _____.

►MULTICS

►OS/2

►Windows

►Linux

The execution of critical sections must NOT be mutually exclusive

►True

►False

The critical section problem can be solved by the following except

►Software based solution

►Firmware based solution

►Operating system based solution

►Hardware based solution

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

►User interface

►Hardware

►Kernel

►None of the given options

Under what conditions can you use the Wait-for graph to detect deadlock?

ANS:

We use wait-for graph in a condition if all the resources have only a single instance, then we use deadlock detection algorithm that uses a variant of the

resource allocation graph.

Question No: 32 (Marks: 2)

List the four events that cause the execution of a piece of code in kernel.

Ans:

List the four events that cause the execution of a piece of code in kernel:

1- Interrupt

2- Trap

3- System call

4- signal

Question No: 33 (Marks: 2)

What is basic logic in FIFO page replacement algorithm?

Ans:

A FIFO page replacement algorithm correlates with every page to know the time when that page was brought into memory. When a page becomes to be replaced, the oldest page is chosen. It is not necessary to record the time when the page was brought in. for this we can create a FIFO queue to hold all pages into memory. We simply replace the page at the head of the queue.

Question No: 34 (Marks: 2)

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

One serious problem with using an acyclic-graph structure is ensuring that there are no cycles. 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. A similar problem exists when we are trying to determine when a file can be deleted. A value of 0 in the reference count means no more references to the file/directory can be deleted. However, cycles can exist, e.g, due to self-referencing. In this case we need to use a garbage collection scheme, which involves traversing the entire file system, marking everything that can be accessed. Then a second pass collects everything that is not marked onto a list of free space. However this is extremely time consuming and is seldom used. However it is necessary because of possible cycles in a graph.

Question No: 35 (Marks: 3)

What are the three different stages/times when the addresses can be bound to instructions and data?

Ans:

1- compile time

2- load time

3- execution time

Question No: 36 (Marks: 3)

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

Question No: 37 (Marks: 3)

List down two major benefits of Virtual Memory

Ans:

- 1-Users would be able to write programs for an extremely large virtual address space which simplifies the programming task.
- 2- less input and output needed to load or swap each user program into memory, so each user program would run faster.

Question No: 38 (Marks: 3)

Write three main responsibilities of an operating system?

Ans:

- 1- manage secondary storage devices
- 2- manage processes
- 3- allow a user to manage files and directories properly

Question No: 39 (Marks: 5)

Briefly explain the difference Least frequently used and Most Frequently Used algorithms with respect to Page Replacement techniques.

Least frequently used algorithm

This algorithm is based on the locality of reference concept— the least frequently used page is not in the current locality. LFU requires that the page with the smallest count be replaced. The reason for this selection is that an actively used page should have a large reference count. This algorithm suffers from the situation in which a page is used heavily during the initial phase of a process, but then is never used again. Since it was used heavily it has a large count and remains in memory even though it is no longer needed.

One solution is to shift the counts right by 1 bit at regular intervals, forming an exponentially decaying average user count.

Most Frequently Used

The MFU page replacement algorithm is based on the argument that the page with the smallest count was probably just brought in and has yet to be used; it will be in the **locality** that has just started.

Question No: 40 (Marks: 5)

Calculate the maximum no. of bits required for page number and no. of bits required for frames when there are 16 pages and 32 frames in the system?

How can you display the status of suspended and background processes in Unix/Linux shell.

Which anomaly is invoked in FIFO page replacement?

Define MVT with respect to memory management.

Scan Algorithm is sometimes called the elevator algorithm, why?

What is the work of protection bits in the primary protection scheme under paging?

List any one advantage and one disadvantage of using large block size?

When the detection algorithm should run to detect deadlock in the system?

How can you move a process into background in a Unix/Linux shell, write its syntax?

Long Question

Briefly explain thrashing as it pertains to main memory management?

What is swap space? Do you think that one additional aspect of demand paging is the handling and overall use of swap space. Briefly comment.

Demand Paging. 5 marks.

Virtual Memory Basic Concept 3marks

Banker's Algorithm 3marks.

Another Paper:-

Q1 Diff b/w blocking send and non-blocking send?

Q2 diff b/w fork system call and vfork system call?

Q3 purpose of FAT (file allocation table)?

Q4 diff b/w external fragmentation and internal fragmentation?

Q5 file structure names ???

Q6 types of status of process ?

Another Paper:-

name the address generated by CPU?

explain one advantage and one disadvantage of greater block size?

events in kernel?

explain swapping in context to virtual memory?

Briefly explain the pats and their purpose pf logical address?

write down the steps for page replacement method?

Another Paper:-

Q1 Diff b/w blocking send and non-blocking send?

Q2 diff b/w fork system call and vfork system call?

Q3 purpose of FAT (file allocation table)?

Q4 diff b/w external fregmentation and external fregmenatation?

Q5 file structure names ???

Q6 types of status of process ?

Calculate the maximum no. of bits required for page number and no. of bits required for frames when there are 16 pages and 32 frames in the system?

Answer the following questions:

a) If there are 50 processes then the total number of page tables will be?

b) How can we calculate the number of bits required to identify the number of pages in the

process address space. Give the formula.

c) If there are 64 pages in the process address space then what will be the total number of entries in page table.

d) How can we calculate the MAXIMUM number of pages with the given info: no. of bits of logical address space (p) and size of the page table. Give the formula.

e) How can we calculate the size of the page table?

Question # 2 Marks: $2.5 \times 4 = 10$

The logical address space of the process is 8 pages and the size of each page is 1 Kb. There are 64 frames in the main memory. The size of a frame is equivalent to the size of a page. With the given information, answer to the following questions:

- 1 Calculate the size of Logical Address?
- 2 Find the size of the Logical Memory?
- 3 Calculate the size of Physical Address?
- 4 Determine the size of the Physical Memory?

Question:

What do u think that y main memory is kept as a volatile memory and y not a permanent storage device?

In my view, the main memory is volatile because it has maintain current and pending jobs to do till job done it kept data then transfers to the permanent storage device but the permanent storage device has to only store the data so that's why data cannot be on stack always all data cannot be in working.

Question:

Briefly explain thrashing as it pertains to main memory management.

A process is thrashing if it is spending more time paging than executing. Thrashing result I n severe performance problems: low CPU Utilization, high disk utilization of other I/O devices.

Question:

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

Worked out Examples

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.

Ans:

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

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

- a. Process requests for I/O.
- b. Process finishes execution.
- c. Process finishes its time allotted.
- d. All of the above through c
- e. None of the a through c above.

Ans: d

16. 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 $Y > X > 0$?

- a. LIFO
- b. FCFS
- c. Round Robin
- d. None of the above

Ans: b

17. 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 .

- a. $n(n-1)$
- b. n^2
- c. $n!$
- d. $n/2$

Ans: c

Question

-----points to the page table.

Translation look-aside buffers

Page offset

Page-table length register (PRLR)

Page-table base register (PTBR)

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

Secondary Storage memory devices have _____ memory.

Volatile

Permanent and non volatile

Temporary

None

Segmentation is a memory management scheme that supports _____?

Programmer's view of memory

System's view of memory

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

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

True

False

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 of 10 (Start time: 04:21:52 PM) Total Marks: 1

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

Select correct option:

1. Operating System, User processes

2. Operating system, CPU
3. Processes, Virtual Memory
4. Base Register, Limit Register

Question # 1 of 10 (Start time: 02:09:44 PM)

_____ 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

Question # 3 of 10 (Start time: 02:12:01 PM)

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

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

Question # 5 of 10 (Start time: 02:14:56 PM)

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

Question # 6 of 10 (Start time: 02:15:37 PM)

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
Paging
MVT

_____ algorithm is used in Deadlock avoidance. Select correct option:

Bakery

Banker's

Mutual exclusion
Safe Sequence

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

Question # 8 of 10 (Start time: 02:31:11 PM)

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

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

Select correct option:

Fragmentation

Paging

Swapping

Overlays

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

Select correct option:

True

False

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 of 10 (Start time: 02:14:56 PM) Total Marks: 1

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 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

Limit register

Index register

Stack pointers register

Main Memory is _____ memory.

Select correct option:

Volatile

Non-volatile

Permanent

Virtual

Question # 8 of 10 (Start time: 07:17:04 PM) Total Marks: 1

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

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

FIFO Page Replacement Algorithm has the lowest page fault rate

Select correct option:

1. True

2. False

Question # 3 of 10 (Start time: 08:48:22 AM)

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)?

1. 4 bits

2. 8 bits

3. 16 bits

4. 32 bits

Question # 4 of 10 (Start time: 08:49:47 AM)

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:

1. 5

2. 6

3. 7

4. 8

Question # 5 of 10 (Start time: 08:50:19 AM)

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

Select correct option:

1. Counter based

2. Least Frequently Used

3. FIFO

4. LRU

Question # 6 of 10 (Start time: 08:51:48 AM)

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

Select correct option:

1. ROM

2. Physical memory

3. Virtual Memory

4. None of the given options

Question # 7 of 10 (Start time: 08:52:29 AM)

The high paging activity is called _____

Select correct option:

1. Segmentation

- 2. Page Fault
- 3. Multiprogramming

4. Thrashing

Question # 8 of 10 (Start time: 08:53:15 AM)

Following are the advantages of Virtual memory EXCEPT

Select correct option:

- 1. Efficient process creation
- 2. Concept of memory mapped files

3. Low CPU consumption

- 4. Running large sized processes

Question # 9 of 10 (Start time: 08:54:16 AM)

A _____ system is similar to a paging system with swapping

Select correct option:

- 1. Context switching

2. Demand paging

- 3. Page fault
- 4. None of the given options

Question # 10 of 10

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

- 1. Fixed Allocation

2. Proportional Allocation

- 3. Priority Allocation
- 4. None of the given options

Question # 1 of 10 (Start time: 09:01:48 AM)

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

- 1. 2-level paging

2. Page directory

- 3. Page size
- 4. Page table size

Question # 2 of 10 (Start time: 09:02:57 AM)

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

Select correct option:

1. minimize the number of page faults.

- 2. increase efficiency.
- 3. reduce running time of page replacement algorithm.
- 4. maximize the number of page faults.

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

Select correct option:

- 1. Exec
- 2. Fork

3. Demand Paging

- 4. Thrashing

Question # 6 of 10 (Start time: 09:06:41 AM)

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.

Select correct option:

1. **Virtual, physical**
2. Hexadecimal, Binary
3. Valid, invalid
4. Physical, Virtual

Question # 7 of 10 (Start time: 09:08:10 AM)

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

Select correct option:

1. Fixed size partition scheme
2. Variable size partition scheme
3. Fixed size paging scheme
4. **Variable size paging scheme**

Question # 9 of 10 (Start time: 09:10:20 AM)

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

Select correct option:

1. **mmap()**
2. fork ()
3. exec()
4. read()

1 of 10 (Start time: 09:14:42 AM)

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

Select correct option:

1. **Fixed size**
2. Variable size

Question # 2 of 10 (Start time: 09:15:13 AM)

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

Select correct option:

1. constant
2. decreased
3. **increased**
4. All of the given

Question # 5 of 10 (

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

Select correct option:

1. **True**
2. False

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

Select correct option:

1. **vfork ()**
2. wfork ()
3. avfork ()
4. bfork ()

The main criteria for Page Replacement in Optimal Page Replacement Algorithm is to

Select correct option:

1. **replace that page which will not be used for the longest period of time.**

2. replace that page which will be required most frequently in the execution of a process
3. replace the page which is biggest in size
4. replace the page which is smaller in size

Question # 7 of 10 (Start time: 09:28:48 AM)

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

Select correct option:

- 1. Less than**
2. Greater than
3. Equal to
4. Greater than or equal to

Question # 8 of 10 (Start time: 09:29:27 AM)

The logical address of Intel 80386 is _____.

Select correct option:

1. 36 bits
- 2. 48 bits**
3. 64 bits
4. 128 bits

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

Select correct option:

1. Clean
- 2. Dirty**
3. Overwritten
4. Ideal

FIFO Page Replacement Algorithm has the lowest page fault rate

Select correct option:

1. True
- 2. False**

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:

- 1. Page Fault**
2. Page replacement
3. Paging
4. Segmentation

Following schemes allow efficient implementations of page tables EXCEPT

Select correct option:

1. Hashed Page Table
2. Hierarchical / Multilevel Paging
3. Inverted Page Table
- 4. Binary Page Table**

Question # 1 of 10 (Start time: 09:45:50 PM) Total Marks: 1

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

Select correct option:

1. Highest
- 2. Lowest**
3. Normal
4. None of the given

Question # 10 of 10 (Start time: 10:02:05 PM) Total Marks: 1

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

Select correct option:

1. **increases**
2. decreases
3. sometimes increases and sometimes decreases
4. 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:

1. True
2. **False**

The size of a page is defined by _____.

Select correct option:

1. **CPU**
2. **Page Table**
3. Physical Memory
4. Logical Memory

Question # 6 of 10 (Start time: 09:58:43 PM) Total Marks: 1

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

Select correct option:

1. **True**
2. False

Question # 4 of 10 (Start time: 09:47:43 PM) Total Marks: 1

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

Select correct option:

- ☒ **2**
- ☐ 3
- ☐ 4
- ☐ 5

A process is _____ if it is spending more time on paging

Select correct option:

1. **Thrashing**
2. Demand paging
3. Paging
4. Fixed Allocation

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

Progress

Mutual Exclusion

Bounded Waiting

Race Condition

Question # 4 of 10

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

nice
cmd
cat

grep

Round Robin algorithm is most suitable for _____.

Time sharing system

Real time systems and batch systems

Running Batch programs

Expert system

systems involving queues and servers.

Little's Formula

Deterministic Modeling

Queuing Theory

Queuing analysis

Question # 10 of 10

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

True

False

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*

Question No: 7 (Marks: 2) - Please choose one

Logical address is generated by,

► *CPU*

► *Compiler*

► *Hard disk*

► *None of the these*

Question No: 8 (Marks: 2) - Please choose one

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

► *True*

► *False*

Question No: 9 (Marks: 2) - Please choose one

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: 10 (Marks: 2) - Please choose one

Kernel means

- ▶ The parts of the OS code concerned with security
- ▶ Architecture dependent parts of the OS code
- ▶ The entire software shipped as OS by the manufacturer
- ▶ Program running at all times on the computer

To a computer operating system a thread is

- ❑ Used for mounting temporary file systems.
- ❑ Used for storing temporary files.
- ❑ Utilities used for system administration are stored in the directory.
- ❑ Special virtual directory used to store system processes.

/proc

Question No. 4 Marks : 2

- ❑ which removes process from memory and reduces degree of multiprogramming
- ❑ Selects which process should be executed next and allocates CPU
- ❑ Selects the processes that should be brought in the ready queue, from the job pool.

Medium term scheduler

Question No. 3 Marks : 2

- ❑ Identifiable computation unit with state executing a task.
- ❑ Input/output stream associated with a process
- ❑ Trace of system calls made by a process.

What is spooling?

- ❑ None of the above.
- ❑ 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 do long term job scheduling
- ❑ Ability of an OS to protect jobs from writing into the wrong memory Location

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

- ❑ Virtual memory
- ❑ Timer
- ❑ Memory-addressing hardware
- ❑ I/O device

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.
- ▶ 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 (Marks: 2) - Please choose one

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.

Question No: 3 (Marks: 2) - Please choose one

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.

Question No: 4 (Marks: 2) - Please choose one

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

- ▶I/O device
- ▶Memory-addressing hardware
- ▶Timer
- ▶Virtual memory
- ▶None of the given choices.

Question No: 5 (Marks: 2) - Please choose one

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 inode of the file containing the executable image of the process on disk.
- ▶All of the given choices.
- ▶None of the given choices.

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

- ▶True
- ▶False
- ▶Ambiguous question

Question No: 2 (Marks: 2) - Please choose one

The Multi-Level Feedback Queue (MLFQ) scheduling algorithm is the same as Shortest-Job-First.

- ▶True
- ▶False
- ▶Ambiguous question

Question No: 3 (Marks: 2) - Please choose one

In paging systems, external fragmentation cannot occur.

▶True

▶False

▶Ambiguous question

Question No: 4 (Marks: 2) - Please choose one

Race condition cannot occur on a uniprocessor.

▶True

▶False

▶Ambiguous question

Question No: 5 (Marks: 2) - Please choose one

A processor in ready state can only change to running or exit state.

▶True

▶False

▶Ambiguous question

Question # 4 of 10 (Start time: 10:13:31 PM) Total Marks: 1

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

Select correct option:

Run time

Load time

Dynamic time

None of the given options

quiz cs604 no2

CS604 Quiz #2 Fall 2012 Solved With Reference

1..... Is caused due to unavailability of resources

Ans: Starvation Lec#23 p#112

2 The type of semaphore, whose value can not be greater than 1, is.....

Ans: Binary Semaphore Lec#24 p#114

3..... Separates logical memory from physical memory

Ans: Virtual Memory Lec#37 p# 185

4..... Register is used to point the smallest memory address of a process and its size.

Ans: Limit Register Lec# 31 p#158

5 There is no dynamic address translation in case of

Ans: MFT (Multi-Programming with Fixed Tasks) Lec#31 p#159

6 If HR is hit ratio and MR is miss ratio then effective access time is given by.....

Teffective = HR (TTLB+ Tmem) + MR (TTLB + 2Tmem) Lec#33 p#167

7 Variation of fork () system call used by UNIX is.....

Ans: vfork () Virtual fork Lec#38 p# 193

8 FIFO page replacements has lowest page fault rates

Ans: False Correct Optimal Algorithm Lec#38 p#199

9 Correct about LRU is

Ans: Replacement with least recently used page Lec#39 p#199

Physical memory is broken into fixed sized blocks called.....

Ans: Frames Lec#32 p#162

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 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 _____.

Deadlock

Starvation

Following is not the classical problem of synchronization.

Bounded buffer problem

Reader writer problem

Dining philosophers problem

Counting Semaphore problem

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

vfork ()

wfork ()

avfork ()

bfork ()

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

Logical address

Physical address

Binary addresses

None of the given options

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)?

5

6

7

8

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

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

Deadlock prevention

Deadlock avoidance

Allowing deadlock to occur, then detect and recover

All of the given

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

Wait for graph

Resource allocation graph

Both Resource-allocation and wait-for graph

None of the given options

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 are correct

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

Counter based

Least Frequently Used

FIFO

LRU

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

Input queue

Output queue

Both input and output queue

None of the given options

Banker's algorithm is used for _____

Deadlock avoidance

Deadlock detection

Deadlock prevention

Deadlock removal

The size of a page is defined by _____.

CPU

Page Table

Physical Memory

Logical Memory

The term pager is used in connection with _____.

Demand Paging

Paging

Segmentation

Paged Segmentation

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

Critical region

Circular wait

Monitors

Critical section

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

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

Linker

Compiler

Loader

Text editor

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

Deadlock prevention

Deadlock avoidance

Allowing deadlock to occur, then detect and recover

All of the given

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

Base register

Limit register

Index register

Stack pointers register

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)?

5

6

7

8

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

Select correct option:

ROM

Physical memory

Virtual Memory

None of the given options

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 are correct

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

True

False

Cache is non-volatile memory.

True

False

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

Logical address space

Process address space

Physical address space

None of the given options

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

2

3

4

5

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)?

5

6

7

8

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

Highest

Lowest

Normal

None of the given

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

Clean

Dirty

Overwritten

Ideal

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

Less than

Greater than

Equal to

Greater than or equal to