

## OS LAB WORK GROUP ASSIGNMENT

DANIEL SAMUM JUNIOR	2569014
NYARKO DARLINGTON	2566914
BONSU MARTIN BRENYA	2563414
LUTE YAKUBU	2569914
DARKO FRANK	2564314
ANING DANIELLA	2561814
ANIM-OFORI CALVIN AGYEI	2561714
JEFFREY OWUSU-BERKO	2568314
OWUSU ANTWI ISAAC	2568214
ISHMAEL BOTCHWAY NII AYI	2563614

## CHAPTER ONE

1. The address of the next instruction to be executed by the current process is provided by the

- a) CPU registers
- b) program counter
- c) process stack
- d) pipe
- e) Program lister

2. Which system call returns the process identifier of a terminated child?

- a) wait
- b) exit
- c) fork
- d) get
- e) terminate ID

3. A process stack does not contain

- a) function parameters
- b) local variables
- c) return addresses
- d) PID of child process
- e) init process identifier

4. A set of processes is deadlock if

- a) each process is blocked and will remain so forever
- b) each process is terminated
- c) all processes are trying to kill each other
- d) Process will continue later
- e) Process resources are dead

5. What is interprocess communication?

- a) communication within the process
- b) communication between two process
- c) communication between two threads of same process
- d) communication between two systems
- e) communication between two CPU

6. What is the ready state of a process?

- a) when process is scheduled to run after some execution
- b) when process is unable to run until some task has been completed
- c) when process is using the CPU
- d) when process is being created
- e) When process is terminating

7. A process can be terminated due to

- a) normal exit
- b) fatal error
- c) killed by another process
- d) all of the mentioned
- e) None of the above

8. In Unix, Which system call creates the new process?

- a) fork
- b) create
- c) new
- d) Exist
- e) none of the mentioned

9. In operating system, each process has its own

- a) address space and global variables
- b) open files
- c) pending alarms, signals and signal handlers
- d) all of the mentioned
- e) None of the above

10. The systems which allow only one process execution at a time, are called

- a) uniprogramming systems
- b) uniprocessing systems
- c) unitasking systems
- d) Multiprogramming systems
- e) None of the above

## CHAPTER 2

1. Indicate which, of the following is not true about the interpreter

- A . **Interpreter generates an object program from the source program**
- B . Interpreter is a kind of translator
- C . Interpreter analyses each source statement every time it is to be executed
- D . All of the above
- E . None of the above

2. One set of operation system service that ensure that a system must be able to load a program into memory and to run that program is called  
**A . Program execution**  
B . User interface  
C . Resource allocation  
D . Accounting
3. The following are types of application programmer interface except  
A . Java API  
B . POSIX API  
C . Windows  
**D . Linux**
4. The system 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  
A . Editors  
B . Compilers  
**C . System calls**  
D . Caching
5. The form of interface that uses command and directives to control those commands are entered into files and those files are executed is known as  
A . Command line interpreter  
B . Graphical user interface  
**C . Batch interface**  
D . Windows
6. The MS-DOS operating system is an example of a single-tasking system  
**A . True**  
B . False
7. The following are major categories of system calls, except  
A . Process control  
B . Device manipulation  
C . Communication  
D . Protection  
**E . File management**
8. In the case of Unix and Linux for programs in C language, the library is called  
A . lib  
B . bat  
**C . libc**

9. Which of the following is an operation system service
- A . Accounting
  - B . Resource allocation
  - C . User interface
  - D . All of the above**
10. On systems with multiple command interpreters to choose from, the interpreters are known as
- A . Shells**
  - B . Kernel
  - C . Threads
  - D . Multitasking

### CHAPTER 3

1. What is the degree of multi programming
- a) number of processes executed per unit time
  - b) number of processes in the ready queue
  - c) number of processes in the I/O queue
  - d) number of processes in memory
  - e) all of the above
2. The PCB is
- a) process type variable
  - b) secondary storage section
  - c) a block in meEmory
  - d) data structure
  - e) none of the above
3. The entry of all the PCB of the current process is in
- a)Process register
  - b) program counter
  - c) process table
  - d) process unit

- e) all of the above
4. A single thread of control allows the process to perform
- a) one task at a time
  - b) multiple task at a time
  - c) all of the above
  - e) none of the above
5. The number of processes completed per unit time is
- a) output
  - b) throughput
  - c) efficiency
  - d) capacity
  - e) input
6. A PCB does not contain
- a) code
  - b) stack
  - c) heap
  - d) data
  - e) bootstrap program
7. Which of the following state transition is not possible?
- a) blocked to running
  - b) ready to running
  - c) blocked to ready
  - d) running to blocked
  - e) none of the above
8. Scheduling of threads are done by the
- a) input
  - b) output
  - c) operating system
  - d) memory
  - e) scheduler

9. When a process terminates

- a) removed from all queues
- b) removed from all but job queue
- c)it's pcb is de allocated
- d)it's pcb is not de allocated
- e)a and c

10. In a time sharing os, when the time slot of a process is completed, the process goes from the running state to the

- a) blocked
- b)ready
- c)suspended
- d)terminated state
- e) all of the above

## CHAPTER 4

1. A thread comprises a thread ID, a program counter, a register set, and a .....
  - a. Slack
  - b. Heap
  - c. Signal
  - d. Stack
2. The benefits of multithreaded programming can be broken down into four major categories namely; economy, responsiveness, resource sharing and .....
  - a. Schedulability
  - b. Reliability
  - c. Scalability
  - d. Resistivity
3. A system is ..... if it can perform more than one task simultaneously.
  - a. Vertical
  - b. Horizontal
  - c. Parallel
  - d. Slanted
4. A ..... system supports more than one task by allowing all the tasks to make progress.

- a. Horizontal
  - b. Vertical
  - c. Concurrent
  - d. Current
5. In multithreading models there are ..... common ways of establishing a relationship.
    - a. One
    - b. Two
    - c. Three
    - d. Four
  6. A ..... provides the programmer with an API for creating and managing threads.
    - a. Thread header
    - b. Thread archive
    - c. Thread library
    - d. Thread manager
  7. Threads are created in the Windows API using the ..... function.
    - a. Makethread()
    - b. Createthread()
    - c. Dothread()
    - d. None of the above
  8. Thread ..... involves terminating a thread before it has completed.
    - a. Annulment
    - b. Cancellation
    - c. Pausing
    - d. Halting
  9. A thread that is to be canceled is often referred to as the ..... thread.
    - a. Weak
    - b. Short
    - c. Target
    - d. Strong
  10. One scheme for communication between the user-thread library and the kernel is known as ..... activation.
    - a. Scheduler
    - b. Host
    - c. Root
    - d. None of the above

## Chapter 5

1. Which one of the following is a synchronization tool?
  - a) thread
  - b) pipe



c) **semaphore**

d) socket

e) gete

2. When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place, is called

a) dynamic condition

b) **race condition**

c) essential condition

d) critical condition

e) order condition

3. If a process is executing in its critical section, then no other processes can be executing in their critical section. This condition is called

a) **mutual exclusion**

b) critical exclusion

c) synchronous exclusion

d) asynchronous exclusion

e) progress exclusion

4. Which process can be affected by other processes executing in the system?

a) **cooperating process**

b) child process

c) parent process

d) init process

e) system process

5. A semaphore is a shared integer variable

- a) **that can not drop below zero**
- b) that can not be more than zero
- c) that can not drop below one
- d) that can not be more than one
- e) that can not drop below two

6. Mutual exclusion can be provided by the

- a) mutex locks
- b) binary semaphores
- c) **both (a) and (b)**
- d) none of the mentioned
- e) peterson's solution

7. When high priority task is indirectly preempted by medium priority task effectively inverting the relative priority of the two tasks, the scenario is called

- a) **priority inversion**
- b) priority removal
- c) priority exchange
- d) priority modification
- e) priority exclusion

8. Process synchronization can be done on

- a) hardware level
- b) software level
- c) system level
- d) **both (a) and (b)**
- e) none of the mentioned

9. A monitor is a module that encapsulates
- a) shared data structures
  - b) procedures that operate on shared data structure
  - c) synchronization between concurrent procedure invocation
  - d) **all of the mentioned**
  - e) none of the above
10. To enable a process to wait within the monitor,
- a) **a condition variable must be declared as condition**
  - b) condition variables must be used as boolean objects
  - c) semaphore must be used
  - d) all of the mentioned
  - e) none of the above mentioned

## **CHAPTER 6 - CPU SCHEDULING**

1. By switching the CPU among processes, the can make the computer more productive
- a.operating system    b.software    c. hardware    d. application    e.RAM
2. On operating systems that support threads, it is kernel-level threads,not.....that are in fact being scheduled by the operating system.
- a.programs    b.processes    c.operating system    d.scheduler    e.application
3. Scheduling is a fundamental..... funtion.
- a.application software    b.BIOS    c.bootloader    d.operating system    e.CPU
- 4.Process execution begins with a .....
- a.I/O burst    b.CPU burst    c.CPU utilization    d.CPU scheduling    e.click
- 5.CPU -scheduling decisions may take place under the following circumstances except.....
- a. When a process switches from the running state to the waiting state
  - b. When a process switches from the running state to the ready state
  - c. When a process switches from the waiting state to the ready state
  - d. When a process terminates
  - e. When a process starts
- 6.Which of the following is not a criterion for selection a particular CPU scheduling algorithm?

a.response time   b.length of algorithm   c.waiting time   d.CPU utilization  
e.turnaround time

7. With this scheduling algorithm, the process that requests the CPU first is allocated the CPU first.

a.first-come,first-served   b.shortest-job-first   c.priority scheduling   d.round-robin scheduling  
e.multilevel queue

8. In this algorithm, when the CPU is available, it is assigned to the process that has the smallest next CPU burst.

a.first-come,first-served   b.shortest-job-first   c.priority scheduling   d.round-robin scheduling  
e.multilevel queue

9. In this algorithm, a priority is associated with each process, and the CPU is allocated to the process with the highest priority.

a.first-come,first-served   b.shortest-job-first   c.priority scheduling   d.round-robin scheduling  
e.multilevel queue

10. For....., a task must be serviced by its deadline; service after the deadline has expired is the same as no service at all.

a.soft real-time systems   b.hard real-time systems   c. critical systems   d.real-time systems  
e.operating systems.

## CHAPTER SEVEN

1. What is the reusable resource?

a) that can be used by one process at a time and is not depleted by that use

b) that can be used by more than one process at a time

c) that can be shared between various threads

d) Non used resources

e) Exhausted resources

2. Which of the following condition is required for deadlock to be possible?

a) mutual exclusion

b) a process may hold allocated resources while awaiting assignment of other resources

c) no resource can be forcibly removed from a process holding it

d) all of the mentioned

e) None of the above

3. A system is in the safe state if

a) the system can allocate resources to each process in some order and still avoid a deadlock

b) there exist a safe sequence

c) both (a) and (b)

d) none of the mentioned

e) none of the above

4. Which one of the following is the deadlock avoidance algorithm?
- a) banker's algorithm
  - b) round-robin algorithm
  - c) elevator algorithm
  - d) karn's algorithm
  - e) deadlock algorithm
5. A problem encountered in multitasking when a process is perpetually denied necessary resources is called
- a) deadlock
  - b) starvation
  - c) inversion
  - d) aging
  - e) denial access
6. To avoid deadlock
- a) there must be a fixed number of resources to allocate
  - b) resource allocation must be done only once
  - c) all deadlocked processes must be aborted
  - d) inversion technique can be used
  - e) Change the content of processes
7. Which one of the following is a visual ( mathematical ) way to determine the deadlock occurrence?
- a) resource allocation graph
  - b) starvation graph
  - c) inversion graph
  - d) Priority inversion
  - e) semaphones
8. What is the drawback of banker's algorithm?
- a) in advance processes rarely know that how much resource they will need
  - b) the number of processes changes as time progresses
  - c) resource once available can disappear
  - d) all of the mentioned
  - e) A and B only
9. For effective operating system, when to check for deadlock?
- a) every time a resource request is made
  - b) at fixed time intervals
  - c) both (a) and (b)
  - d) A only
  - e) none of the mentioned
10. The circular wait condition can be prevented by
- a) defining a linear ordering of resource types
  - b) using thread
  - c) using pipes
  - d) increasing resources

e) all of the mentioned

## **CHAPTER EIGHT: MAIN MEMORY**

1. Other programs linked before the new library was installed will continue using the older library, this system is known as \_\_\_\_\_
  - A. Linked libraries
  - B. System libraries
  - C. Shared libraries
  - D. Swapped libraries
  - E. Local libraries

ANSWER=C

2. The CPU fetches instructions from memory according to the value of the \_\_\_\_\_
  - A. Swap memory
  - B. Program counter
  - C. Registers
  - D. System bus
  - E. Keyboard input

ANSWER=B

3. An address seen by the memory unit that is, the one loaded into the memory-address register of the memory is commonly referred to as a \_\_\_\_\_
  - A. Physical address
  - B. MAC address
  - C. IP address
  - D. DNS address
  - E. Logical address

ANSWER=A

4. One solution to the problem of external fragmentation is \_\_\_\_\_
  - A. Compaction
  - B. Swapping
  - C. Fragmentation
  - D. CPU utilization
  - E. Virtualization

ANSWER=A

5. What is the memory from 1K - 640K called?

- A. Extended memory
- B. Normal memory
- C. Low memory
- D. Fixed memory
- E. Conventional memory

ANSWER=A

6. Virtual memory is \_\_\_\_\_.
- A. An extremely large main memory
  - B. An extremely large secondary memory
  - C. An illusion of extremely large main memory
  - D. A type of memory used in super computers
  - E. D and A

ANSWER=C

7. An address generated by the CPU is commonly referred to as a \_\_\_\_\_
- A. Logical address
  - B. MAC address
  - C. IP address
  - D. Physical address
  - E. DNS address

ANSWER=A

8. The run-time mapping from virtual to physical addresses is done by a hardware device called the
- A. Memory management unit(MMU)
  - B. Memory addressing unit
  - C. Fragmentation
  - D. Virtualization
  - E. Conventional memory

ANSWER=A

9. The\_\_\_\_\_ holds the smallest legal physical memory address;
- A. Base register
  - B. Limit register
  - C. Full register
  - D. Address register
  - E. Local register

10. The\_\_\_\_\_ holds the smallest legal physical memory address;
- F. Base register
  - G. Limit register
  - H. Full register
  - I. Address register

Local register

## CHAPTER NINE

1. Swap space exists in
  - a) Primary memory
  - b) Secondary memory
  - c) CPU
  - d) None of the above.
  
2. When a program tries to access a page that is mapped in address space but not loaded in physical memory, then
  - a) Segmentation fault occurs
  - b) Fatal error occurs
  - c) Page fault occurs
  - d) No error occurs
  
3. Because of virtual memory, the memory can be shared among
  - a) Processes
  - b) Threads
  - c) Instructions
  - d) None of the above
  
4. \_\_\_\_\_ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
  - a) Paging
  - b) Demand paging
  - c) Segmentation
  - d) Swapping
  
5. The pager concerns with the
  - a) Individual page of a process



- b) Entire process
  - c) Entire thread
  - d) First page of a process
6. Working set model for page replacement is based on the assumption of
- a) Modularity
  - b) Locality
  - c) Globalization
  - d) Random access
7. A process is thrashing if
- a) It is spending more time paging than executing
  - b) It is spending less time paging than executing
  - c) Page fault occurs
  - d) Swapping cannot take place
8. Effective access time is directly proportional to
- a) Page-fault rate
  - b) Hit ratio
  - c) Memory access time
  - d) None of the above
9. In FIFO page replacement algorithm, when a page must be replaced
- a) Oldest page is chosen
  - b) Newest page is chosen
  - c) Random page is chosen
  - d) None of the above
10. Which algorithm chooses the page that has not been used for the longest period of time whenever the page is required to be replaced?
- a) First in first out algorithm
  - b) Additional reference bit algorithm
  - c) Least recently used algorithm
  - d) Counting based page replacement algorithm

## **CHAPTER TEN**

1. The surface of a disk platter is logically divided into circular \_\_\_\_\_ which are subdivided into \_\_\_\_\_

- a. sectors, tracks
- b. cylinders, sectors
- c. tracks, sectors
- d. tracks, cylinders
- e. cylinders, tracks

2. A set of tracks that are at one arm position makes up a \_\_\_\_\_

- a. cylinder
- b. sector
- c. cone
- d. track
- e. disk

3. The rate at which data flows between the drive and the computer is \_\_\_\_\_

- a. disk speed
- b. transfer rate
- c. positioning time
- d. random-access time
- e. seek time

4. The time necessary to move the disk arm to the desired cylinder is \_\_\_\_\_

- a. seek time
- b. positioning time
- c. transfer rate
- d. disk speed
- e. random-access time

5. On media that use Constant Linear Velocity (CLV), the \_\_\_\_\_ a track is from the center of the disk, the \_\_\_\_\_ its length

- a. closer, greater
- b. farther, greater
- c. farther, less
- d. position of track is not relative to length

6. Answer to question 5 above, would result in more \_\_\_\_\_

- a. disks
- b. tracks
- c. cylinders
- d. sectors
- e. magnetic tapes

7. The additional time for a disk to rotate the desired sector to the disk head is \_\_\_\_\_

- a. seek time
- b. additional delay
- c. rotational latency
- d. bandwidth
- e. memory access time

8. The disk \_\_\_\_\_ is the total number of bytes transferred, divided by the total time between first request for service and the completion of the last transfer

- a. bandwidth
- b. memory space
- c. storage capacity
- d. disk scheduling

e. seek time

9. All requests close to the current head position are serviced before moving the head far away to service other requests in \_\_\_\_\_ scheduling

a. FCFS

b. SSTF

c. SCAN

d. C-SCAN

e. LOOK

10. The process of dividing a blank disk into sectors that a disk controller can read and write is called \_\_\_\_\_

a. virtual formatting

b. low-level formatting

c. virtual partitioning

d. physical partitioning

e. address allocation