

## **DELIGHT CONCEPT**

**COURSE CODE: CIT211**

**COURSE TITLE: INTRODUCTION TO OPERATING SYSTEMS**

Under dynamic -----, all processes that use a language library execute only one copy of the library code

### **Dynamic Linking and Shared Libraries**

Some operating systems support only static linking, in which the system language libraries are treated like any other object module and are combined by the loader into the binary program image. The concept of dynamic linking is similar to that of dynamic loading. Rather than loading being postponed until execution time, linking is postponed. This feature is usually used with system libraries, such as language subroutine libraries.

Without this facility, all programs on a system need to have a copy of their language library (or at least the routine referenced by the program) included in the executable image. This requirement wastes both disk space and main memory. With dynamic linking, a stub is included in the image for each library-routine reference. This stub is a small piece of code that indicates how to locate the appropriate memory-resident library routine or how to load the library if the routine is not already present.

When this stub is executed, it checks to see whether the needed routine is already in memory. If not, the program loads the routine into memory. Either way, the stub replaces itself with the address of

the routine, and executes the routine. Hence, the next time that the code segment is reached, the library routine is executed directly incurring no cost for dynamic linking. Under this scheme, all **processes that use a language library execute only one copy of the library code.**

This feature can be extended to library updates (such as bug fixes). A library may be replaced by a new version, and all programs that reference the library will automatically use the new version.

Without dynamic linking, all such programs would need be relinked to gain access to the new library. So that programs will not accidentally execute new, incompatible versions of libraries, version information is included in both the program and the library. More than one version of a library may be loaded into memory, and each program uses its version information to decide which copy of the library to use. Minor changes retain the same version number, whereas major changes increment the version number. Therefore only programs that are compiled with new library version are affected by the incompatible changes incorporated in it. Other programs linked before the new library was installed will continue using the older library. This system is also known as shared libraries.

In a system that selects victims for rollback primarily on the basis of cost factors,

-----may occur

### **starvation**

If a system does not employ a protocol to ensure that deadlocks will never occur, then

detection algorithm must be invoked to determine whether a deadlock has occurred. If a deadlock is detected, the system must recover either by terminating some of the deadlocked processes, or by pre-empting resources from some of the deadlocked processes. In a system that selects victims for rollback primarily on the basis of cost factors, **starvation** may occur. As a result, the selected process never completes its designated task.

Q3 For the Banker's algorithm to work, it needs to know ----- things

**three**

For the Banker's algorithm to work, it needs to know **three** things:

- How much of each resource each process could possibly request?
- How much of each resource each process is currently holding?
- How much of each resource the system has available?

Some of the resources that are tracked in real systems are memory, semaphores and interface access.

Q4 The task of terminating a thread before it has completed is called **thread Cancellation**

This is the task of terminating a thread before it has completed. For instance, if multiple threads are running concurrently searching through a database and one returns the result, the remaining threads might be cancelled. Another situation might occur when a user presses a button on a web browser that stops a web page from loading any further. Often a web page is loaded in a separate thread. When a user presses the stop button, the thread

loading the page is cancelled.

Q5 ----- signals are delivered to the same process that performed the operation causing the signal.

### **Synchronous**

Q6 In -----capacity buffer, the sender must block until the recipient receives the message

### **Zero**

Q7 An I/O-bound program would typically have many very short -----bursts

### **CPU**

Q8 The -----is the module that gives control of the CPU to the process selected by the short-term scheduler.

### **dispatcher**

Q9 -----Time is the interval from the time of submission of a process to the time of completion

### **Turnaround Time**

Q10 A solution to indefinite blocking of low-priority processes is-----

### **aging**

Q11 The first problem in selecting a scheduling algorithm is defining the ----- to be used  
**criteria**

Q12 Analytical methods of CPU scheduling algorithm evaluation use----- analysis to  
determine the performance of an algorithm

### **Mathematical**

Q13 ----- is a technique of gradually increasing the priority of processes that wait in the system  
for a long time

### **Aging**

Q14----- synchronization refers to the idea of keeping multiple copies of a dataset in  
coherence with one another.

### **Data**

Q15 The concept of logical-address space that is bound to a separate physical-address space is -----  
---to proper memory management.

### **central**

Q16 Deadlock-----requires that the operating system be given in advance additional  
information concerning which resources a process will request and use during its lifetime

## **avoidance**

Q17 The behaviour of the processes -----unsafe states

## **control**

Q18 -----deadlocks are deadlocks that are detected in a distributed system but don't actually exist .

## **Phantom**

Q19 ----- deadlocks can occur in distributed systems when distributed transactions or concurrency control is being used

## **Distributed**

Q20 The goal of ----- is to shuffle the memory contents to place all free memory together in one large block.

## **Compaction**

Q21 The selection of the first-fit versus best-fit strategies can affect the amount of-----

## **fragmentation.**

Q22 The decision to place the operating system in either low memory or high memory is affected by the location of the----- vector.

**interrupt**

Q23 With dynamic linking, a-----is included in the image for each library-routine reference

**Stub**

Q24 In Unbounded capacity buffer, the sender never -----

**blocks**

Q25 Blocking message passing is known as.....

**synchronous**

Q26 The advantage of dynamic loading is that an -----routine is never loaded

**unused**

Q27 Paging is a form of -----relocation

**Dynamic**

Q28 Every logical address is bounded by the paging hardware to some ----- address

**Physical**

Q29 A nanokernel is a very -----operating system kernel

**minimalist**

Q30 With dynamic loading, a routine is not loaded until it is -----

**called.**

Q31 As processes enter the system, they are put into an -----queue

**Input**

Q32 In the -----time address-binding scheme, the logical- and physical-address spaces differ

**Execution**

Q33 An address generated by the CPU is commonly referred to as -----address

**Logical**

Q34 Communication between processes takes place by -----to send and receive primitives

**calls**

Q35 Thread management in many-to-one model is done in -----space

**User**



Q36 With dynamic loading, all routines are kept on disk in a ----- format

**Relocatable**

Q37 A thread that is to be cancelled is often referred as the -----thread.

**Target**

Q38 The advantage of -----loading is that an unused routine is never loaded

**Dynamic**

Q39 In deadlock avoidance algorithms, the system only grants request that will lead to ----- states

**Safe**

Q40 In message passing, the bounded and unbounded capacity buffer is referred to as -----  
buffering

**Automatic**

Q41 Addresses in the source program are generally-----

**symbolic**

Q42 All wait-free algorithms are ----- -free

**Lock**

Q43 In a real system, CPU utilization should range from -----percent to 90 percent

**40 percent**

Q44 -----is the number of processes completed per time unit

**throughput.**

Q45 -----deadlocks are deadlocks that are detected in a distributed system but don't actually exist

**Phantom**

Q46 ----- addressing allows the kernel to make a given physical address appear to be another address

**Virtual**

Q47 Dynamic -----does not require special support from the operating system

**Loading**

Q48 The problem with semaphores is that they are too ----- level in nature

**Low**

Q49 -----scheduling is simple and easy to implement, and starvation-free

**Round-robin**

Q50 The -----code is sometimes called text section

**program.**

Q51 A -----queue consists of all processes in the system.

**job**

Q52 When both the send and receive primitives of a communication are blocking, we have a-----  
----- between the sender and the receiver.

**Rendezvous**

Q53 The act of switching the CPU to another process requires saving the state of the old process and loading the saved state for the new process. This task is known as -----

**context switch.**

Q54 Fibers are supported -----the kernel

**Above**

Q55 Deterministic modelling is a type of -----evaluation

**analytical**

Q56 In -----capacity buffer, the sender can continue the execution without waiting

**Bounded**

Q57 Aging is a technique to prevent -----

**starvation.**

Q58 When a context switch occurs, the -----saves the context of the old process in its PCB and loads the saved context of the new process scheduled to run

**Kernel**

Q59 -----requires a backing store

**swapping**

Q60 -----can be used to enable a process to be larger than the amount of memory allocated to it

## **Overlays**

Q61 The \_\_\_\_\_ mapping from virtual to physical addresses is done by the memory-management unit

## **Run-time**

Q62 Under \_\_\_\_\_, all processes that use a language library execute only one copy of the library code

## **dynamic linking**

Q63 Which of the following schemes requires help from the operating system?

## **dynamic linking**

Q64 Which of the following does the Banker's algorithm need to know to work?

How much of each resource each process could possibly request

How much of each resource each process is currently holding

How much of each resource the system has available

## **all of the above**

Q65 A process goes from the 'Ready' state to \_\_\_\_\_ state

**running**

Q66 When a process creates a new process, \_\_\_\_\_ possibilities exist in terms of execution

**two**

Q67 In which of the following address-binding scheme is the logical- and physical-address spaces differ

**Execution time**

Q68 Which of the following scheduling algorithms is a type of priority scheduling algorithm?

**shortest-job-first**

Q69 The class of OS that has very little user-interface capability, and no end-user utilities is \_\_\_\_\_ OS

**real-time**

Q70 \_\_\_\_\_ is the most general scheduling scheme, and also the most complex

**Multilevel feedback queue**

Q71 Which of the following does the Banker's algorithm need to know to work?

How much of each resource each process could possibly request

How much of each resource each process is currently holding

How much of each resource the system has available

**all of the above**

Q72 In which of the following ways can a signal be delivered?

Deliver the signal to every thread in the process

Deliver the signal to the thread to which the signal applies

Deliver the signal to certain threads in the process

**Any of the above**

Q73 Cancellation of a target thread may occur in \_\_\_\_\_ different scenarios

**two**

Q74 Canceling a thread \_\_\_\_\_ may not free a necessary system-wide resource.

**asynchronously**

Q75 The benefits of multithreading include the following except:

increased responsiveness to the user

resource sharing within the process

economy

**none of the above**

Q76 \_\_\_\_\_ different types of implementation models relate fibers and kernel-level threads

**Three**

Q77 Under which of the following circumstances can CPU scheduling decisions take place?

When a process switches from the running state to the waiting state

When a process switches from the running state to the ready state

When a process switches from the waiting state to the ready state

**all of the above**

Q78 Which of the following is affected by CPU scheduling algorithm?

**the amount of time a process spends waiting in the ready queue**

Q79 Turnaround Time does not include which of the following?

the sum of the periods spent waiting to get into memory

time waiting in the ready queue

time executing on the CPU and doing I/O



**none of the above**

Q80 The criteria for comparing CPU-scheduling algorithms include the following except:

CPU Utilization

Throughput

Turnaround Time

**None of the above**

Q81 Which of the following memory management algorithm suffers from external fragmentation?

worst fit

best-fit

first-fit

**all of the above**

Q82 The number of processes a system may run simultaneously is \_\_\_\_\_ the number of CPUs

**equal to**

Q83 Given the memory partitions of 100 KB, 500 KB, 200 KB, 300 KB and 600 KB (in that order), if first-fit, best-fit, and worst-fit algorithms were to be used to place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in that order), which algorithm makes the most efficient use of memory?

**first**

Q84 Which of the following scheduling algorithms can degenerate into an FCFS?

**Round-robin**

Q85 The function of a message system is to allow processes to communicate with one another without the need to resort to \_\_\_\_\_ data

**shared**

Q86 In \_\_\_\_\_ operating system the computer's response time is the turnaround time

**batch-processing**

Q87 In which of the following algorithms is this statement true: "A process that uses too much CPU time is degraded to a lower-priority queue, a process that waits too long is upgraded to a higher-priority queue"

**Multilevel feedback queue**

Q88 Which of the following scheduling algorithms can be applied to data packet scheduling?

**Round-Robin**

Q89 \_\_\_\_\_-fit is generally the fastest memory allocation algorithm

**first**

Q90 \_\_\_\_\_-fit algorithm strategy produces the largest leftover hole

worst

best

first

**none of the above**

Q91 In which of the following memory allocation algorithm must the entire list of available memory be searched?

best-fit

worst-fit

all of the above

**none of the above**

Q92 Which of the following thread implementation model allows for greater concurrency?

**one-to-one**

Q93 Which of the following is a solution to external fragmentation?

compaction

non-contiguous logical address space

**all of the above**

none of the above

Q94 Which of the following is an advantage of segmentation?

Operating system may allow segments to grow and shrunk dynamically with unchanging addressing

Sharing on segment level is easy

Protection on segment level of related data

**All of the above**

Q95 The banker's algorithm is a type of \_\_\_\_\_ algorithm

**deadlock-avoidance**

Q96 there are \_\_\_\_\_ methods for dealing with deadlocks

**three**

Q97 In comparing different memory-management strategies, which of the following considerations should be used?

Swapping

Sharing

Protection

**All of the above**

Q98 The collection of processes on the disk that is waiting to be brought into memory for execution forms the \_\_\_\_\_ queue

**input**

Q99 \_\_\_\_\_ scheduling algorithm may lead to convoy effect

**FCFS**

Q100 Which of the following scheduling algorithms produces the shortest waiting time?

**SJF**

Q101 Which of the following scheduling algorithms can cause short processes to wait for long?

**FCFS**

Q102 Which of the following is not a disadvantage of deterministic modelling method of scheduling algorithm evaluation?

**It requires too much knowledge**

Q103 \_\_\_\_\_ method is the only completely accurate way to evaluate a scheduling algorithm

**implementation**

Q104 In which of the following situations can race condition occur?

File system

Networking

Life-critical system

**all of the above**

Q105 Mutual exclusion has \_\_\_\_\_ levels of concurrency

**two**

Q106 A solution to the critical section problem must satisfy which of the following requirements?

mutual exclusion

Progress

Bounded Waiting

**all of the above**

Q107 The circular-wait condition for deadlock implies the \_\_\_\_\_ condition

**hold-and-wait**

Q108 Deadlock prevention algorithms that avoid \_\_\_\_\_ are called non-blocking synchronization algorithms

**mutual exclusion**

Q109 To \_\_\_\_\_ deadlocks, we ensure that at least one of the necessary conditions never holds

**prevent**

Q110 To eliminate deadlocks by aborting process, we use one of \_\_ methods

**two**

Q111 \_\_\_\_\_ is a very light-weight microkernel

**L4**

Q112 The \_\_\_\_\_ kernel represents the closest hardware abstraction layer of the operating system by interfacing the CPU, managing interrupts and interacting with the MMU

**nano**

Q113 The main disadvantages of \_\_\_\_\_ kernels are the dependencies between system components

**monolithic**

Q114 The binding of instructions and data to memory addresses is done at which of the following steps?

Compile time

Load time

Execution time

**Any of the options**

Q115 A real-world example of \_\_\_\_\_ occurs when two people meet in a narrow corridor, and each tries to be polite by moving aside to let the other pass, but they end up swaying from side to side without making any progress because they always both move the same way at the same time



## **livelock**

Q116 Which of the following is not a disadvantage of deterministic modelling?

It requires exact numbers for input and its answers apply to only those cases

It is too specific

It requires too much knowledge to be useful

**none of the above**

Q117 Which of the following is a limit of Queueing model?

The accuracy of the computed results may be questionable

The classes of algorithms and distribution that can be handled is presently limited

It is hard to express a system of complex algorithms and distributions

**All of the above**

Q118 Which of the following requires special operating system support?

**dynamic linking**

Q119 Which of the following is an advantage of segmentation?

Sharing on segment level is easy

Operating system may allow segments to grow and shrunk dynamically with unchanging addressing

Protection on segment level of related data

**All of the above**

Q120 The states of the processes involved in the \_\_\_\_\_ constantly change with regard to one another

**livelock**