BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Bachelor of Technology in Computer Science & Engineering

Course Name – Operating Systems

Course Code - BCSE302

Semester / Year - Semester III

Time allotted : 85 Minutes Full Marks : 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 70=70

1. *(Answer any Seventy)*

(i) Which language uses synchronization methods for synchronization

a) C b) C++

c) Ada d) JAVA

(ii) Example of single user single tasking os is

a) LINUX b) WINDOWS

c) DOS d) None

(iii) Which one of the following error will be handle by the operating system?

a) power failure b) lack of paper in printer

c) connection failure in the network d) all of the mentioned

(iv) 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

(v) A program in execution is called

a) Process b) Instruction

c) Procedure d) Function

(vi) Interval between the time of submission and completion of the job is called

a) Waiting time
b) Turnaround time
c) Throughput
d) Response time

(vii) Which scheduling policy is most suitable for a time-shared operating system

a) Shortest-job First.
b) Elevator.
c) Round-Robin.
d) First-Come-First-Serve.

(viii) RAG is a useful tool to represent a ……. In a system

a) Deadlock
b) Resource allocation
c) Race condition
d) None

(ix) FCFS is ……. Scheduling algorithm.

a) Pre-emptive
b) Non-preemptive
c) Both
d) None

(x) Deadlock prevention is ……..possible

a) Always
b) Not always
c) Sometimes
d) None

(xi) Example of mutually exclusive resource is

a) RAM
b) Printer
c) Both RAM and Printer
d) None

(xii) Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?

a) first-come, first-served scheduling
b) shortest job scheduling
c) priority scheduling
d) none of the mentioned

(xiii) 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) all of the mentioned
d) none of the mentioned

(xiv) 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

(xv) The segment of code in which the process may change common variables, update tables, write into files is known as :

a) program
b) critical section

c) non – critical section
d) synchronizing

(xvi) For a deadlock to arise, which of the following conditions must hold simultaneously?

a) Mutual exclusion
b) No preemption

c) Hold and wait
d) All of the mentioned

(xvii) For sharable resources, mutual exclusion :

a) is required
b) is not required

c) maybe or may not be required
d) none of the mentioned

(xviii) All unsafe states are :

a) deadlocks
b) not deadlocks

c) fatal
d) none of the mentioned

(xix) The content of the matrix Need is :

a) Allocation – Available
b) Max – Available

c) Max – Allocation
d) Allocation – Max

(xx) To access the services of operating system, the interface is provided by the

a) System calls
b) API
c) Library
d) Assembly instructions

(xxi) A process can be terminated due to

a) normal exit
b) fatal error
c) killed by another process
d) all of the mentioned

(xxii) 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) none of the mentioned

(xxiii) The number of processes completed per unit time is known as _____

a) Output
b) Throughput
c) Efficiency
d) Capacity

(xxiv) Which of the following is not the state of a process?

a) New
b) Old
c) Waiting
d) Running

(xxv) What is a short-term scheduler ?

a) It selects which process has to be brought into the ready queue
b) It selects which process has to be executed next and allocates CPU
c) It selects which process to remove from memory by swapping
d) None of the mentioned

(xxvi) The context of a process in the PCB of a process does not contain :

a) the value of the CPU registers
b) the process state

c) memory-management information d) context switch time

(xxvii) Which module gives control of the CPU to the process selected by the short-term scheduler?

a) dispatcher b) interrupt

c) scheduler d) none of the mentioned

(xxviii) The processes that are residing in main memory and are ready and waiting to be executed are kept on a list called

a) job queue b) ready queue

c) execution queue d) process queue

(xxix) The process to be aborted is chosen on the basis of the following factors :

a) priority of the process b) process is interactive or batch

c) how long the process has computed d) all of the mentioned

(xxx) The code that changes the value of the semaphore is _____ .

a) remainder section code b) non – critical section code

c) critical section code d) none of the mentioned

(xxxi) The wait operation of the semaphore basically works on the basic _____ system call.

a) stop() b) block()

c) hold() d) wait()

(xxxii) Semaphore is a/an _____ to solve the critical section problem.

a) hardware for a system b) special program for a system

c) integer variable d) none of the mentioned

(xxxiii) Which of the following conditions must be satisfied to solve the critical

section problem?

a) Mutual Exclusion
b) Progress
c) Bounded Waiting
d) All of the mentioned

(xxxiv) The primary distinction between the short term scheduler and the long term scheduler is

a) The length of their queues
b) The type of processes they schedule
c) The frequency of their execution
d) None of these

(xxxv) What is a medium-term scheduler ?

a) It selects which process has to be brought into the ready queue
b) It selects which process has to be executed next and allocates CPU
c) It selects which process to remove from memory by swapping
d) None of these

(xxxvi) If all processes I/O bound, the ready queue will almost always be _____, and the Short term Scheduler will have a _____ to do.

a) full, little
b) full, lot
c) empty, little
d) empty, lot

(xxxvii) The entry of all the PCBs of the current processes is in :

a) Process Register
b) Program Counter
c) Process Table
d) Process Unit

(xxxviii) A Process Control Block(PCB) does not contain which of the following

a) stack
b) Process State
c) I/O status information
d) bootstrap program

(xxxix) A process stack does not contain:

a) function parameters
b) local variables

c) return addresses

d) PID of child process

(xl) …….. is needed to ensure consistency of results and integrity of a database.

a) Mutual Exclusion

b) Hold and Wait

c) Preemption

d) Circular Wait

(xli) Processors, I/O channels, main and secondary memory devices, and data structures such as files, databases, and semaphores are the examples of ……..

a) Reusable Resources

b) Single Process Resources

c) Consumable Resources

d) Produced Resources

(xlii) A system has 3 processes sharing 4 resources. If each process needs a maximum of 2 units then, deadlock _____.

a) can never occur

b) may occur

c) has to occur

d) none of the mentioned

(xliii) If deadlocks occur frequently, the detection algorithm must be invoked _____ .

a) rarely

b) frequently

c) rarely & frequently

d) none of the mentioned

(xliv) If the wait for graph contains a cycle _____

a) then a deadlock does not exist

b) then a deadlock exists

c) then the system is in a safe state

d) either deadlock exists or system is in a safe state

(xlv) A process can be

a) single threaded

b) none of the mentioned

c) Multithreaded

d) both single threaded and multithreaded

(xlvi) What is the degree of multiprogramming?

a) the number of processes executed per unit time

b) the number of processes in the ready queue

c) the number of processes in the I/O queue

d) the number of processes in memory

(xlvii) Any …… mechanism must have the flexibility to allow several processes to access the same portion of main memory.

a) relocation

b) protection

c) sharing

d) organization

(xlviii) Among all memory management techniques …….. is simple to implement little operating system overhead.

a) Virtual memory paging

b) Simple segmentation

c) Simple Paging

d) Fixed partitioning

(xlix) Having a small amount of internal fragmentation is the weakness of ……. in memory management.

a) Fixed partitioning

b) Simple Paging

c) Virtual memory paging

d) Simple segmentation

(l) In …….. , there is a inefficient use of processor due to the need for compaction to counter external fragmentation.

a) Fixed partitioning

b) Dynamic partitioning

c) Virtual memory paging

d) Simple segmentation

(li) In ……. technique, each process is divided into a number of segments and process loaded by loading all of its segments into dynamic partitions that need not be contiguous.

a) Fixed partitioning

b) Simple Paging

c) Virtual memory paging

d) Simple segmentation

(lii) A process may be loaded into a partition of equal or greater size in ……. of memory

a) Fixed partitioning
b) Simple Paging
c) Virtual memory paging
d) Simple segmentation

(liii) _____is a technique of temporarily removing inactive programs from main memory.

a) Swapping
b) Spooling
c) Semaphore
d) Scheduler

(liv) Run time mapping from virtual to physical address is done by

a) Memory management unit
b) CPU
c) PCI
d) None of the mentioned

(lv) Program always deals with

a) logical address
b) absolute address
c) physical address
d) relative address

(lvi) What is compaction?

a) a technique for overcoming internal fragmentation
b) a paging technique
c) a technique for overcoming external fragmentation
d) a technique for overcoming fatal error

(lvii) External fragmentation exists when :

a) enough total memory exists to satisfy a request but it is not contiguous
b) the total memory is insufficient to satisfy a request
c) a request cannot be satisfied even when the total memory is free
d) none of the mentioned

(lviii) Physical memory is broken into fixed-sized blocks called _____

a) frames
b) pages

c) backing store
d) none of the mentioned

(lix) Every address generated by the CPU is divided into two parts :

a) frame bit & page number
b) page number & page offset
c) page offset & frame bit
d) frame offset & page offset

(lx) The _____ table contains the base address of each page in physical memory.

a) process
b) page
c) page offset
d) frame offset

(lxi) Paging increases the _____ time.

a) waiting
b) execution
c) context – switch
d) all of the mentioned

(lxii) In _____ information is recorded magnetically on platters.

a) magnetic disks
b) electrical disks
c) assemblies
d) cylinders

(lxiii) The backing store is generally a :

a) fast disk
b) disk large enough to accommodate copies of all memory images for all users
c) disk to provide direct access to the memory images
d) all of the mentioned

(lxiv) Which one of the following is a synchronization tool?

a) thread
b) pipe
c) semaphore
d) socket

(lxv) Assume that there are 3 page frames which are initially empty. If the page reference string is 1, 2, 3, 4, 2, 1, 5, 3, 2, 4, 6, the number of page faults using

the optimal replacement policy is_____.

a) 5
b) 6
c) 7
d) 8

(lxvi) A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because

a) It reduces the memory access time to read or write a memory location.
b) It helps to reduce the size of page table needed to implement the virtual address space of a process.
c) It is required by the translation lookaside buffer.
d) It helps to reduce the number of page faults in page replacement algorithms.

(lxvii) Thrashing occurs when

a) When a page fault occurs
b) Processes on system frequently access pages not memory
c) Processes on system are in running state
d) Processes on system are in waiting state

(lxviii) Which of the following page replacement algorithms suffers from Belady's anomaly?

a) FIFO
b) LRU
c) Optimal Page Replacement
d) Both FIFO and LRU

(lxix) Whenever a process needs I/O to or from a disk it issues

a) system call to the CPU
b) system call to the operating system
c) a special procedure
d) all of the mentioned

(lxx) What is the disk bandwidth?

a) the total number of bytes transferred
b) total time between the first request for service and the completion on the last transfer
c) the total number of bytes transferred divided by the total time between the first
d) none of the mentioned

request for service and the completion on
the last transfer