HALDIA INSTITUTE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION UNDER MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL)

Paper Code: MCS-PC 103

Paper Name: Operating System Design

Time Allotted: 1 Hour 30 Minutes *Full Marks*: 70

The figures in the margin indicate full marks
Candidates are required to give their answers in their own words as far as practicable

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives from the followings: 30 x 1 = 30

i) What is UNIX?

a) an operating system
b) a text editor
c) programming language
d) software program

ii) Which of the following is not a feature of UNIX?

a) multitasking
b) multiuser
c) portability
d) easy to use

iii) Swap space exists in _____

a) primary memory
b) secondary memory
c) cpu
d) none of the mentioned

iv) Which part of the UNIX operating system interacts with the hardware?

a) Kernel
b) Shell
c) vi editor

d) application program

v) What is a super user?

a) system manager
b) normal user
c) administrator
d) a user with special rights

vi) Which of the following is not related to UNIX?

a) UNIX was not written in C language
b) Linux is also a version of UNIX
c) UNIX is not for a window
d) None of these

vii) dev/null is a

a) software
b) command
c) file
d) None of these

viii) Following command in UNIX are used to set the task priority?

a) kil
b) nice
c) it
d)ps

ix) The following command is used for making the scripts interacting?

a) chmod +w
b) chmod +rw
c) chmod +r
d)chmod +x

x) All directories of users are usually placed in ……directory?

a) ldev
b) user
c) urw
d) lusr

xi) T he UNIX operating system uses?

a) handshaking
b) affinity scheduling
c) infinity scheduling
d) Fair primitive scheduling

xii) Shell's internel tool is related to read command?

a) no
b) yes
c) both A and B
d) none of these

xiii) Which command is used to see the last access time of various files in a file system?

a) Is-mt
b) ls-lu
c) rmt
d) none of these

xiv) The windowing system of UNIX is called?

a) LINUX
b) UNIX
c) DOS
d) X windowing system

xv) Which one is not true?

a) sort is nor a filter
b) sorting is done on the basis of the first character of each line?
c) sort command sort a file word by word rather than line by line
d) none of these

xvi) In UNIX which of the following information is not the part of the user?

a) kernel task
b) task scheduling
c) scheduling parameters
d) system call states

xvii) In Operating Systems, which of the following is/are CPU scheduling algorithms?

a) Priority
b) Round Robin
c) Shortest Job First
d) All of the mentioned

xviii) To access the services of the operating system, the interface is provided by the _____

a) Library
b) System calls
c) Assembly instructions

d) API

xix) Which one of the following errors will be handle by the operating system?

a) lack of paper in printer
b) connection failure in the network
c) power failure
d) all of the mentioned

xx) If a process fails, most operating system write the error information to a _____

a) new file
b) another running process
c) log file
d) none of the mentioned

xxi) In a timeshare operating system, when the time slot assigned to a process is completed, the process switches from the current state to?

a) Suspended state
b) Terminated state
c) Ready state
d) Blocked state

xxii) Transient operating system code is a code that _____

a) stays in the memory always
b) never enters the memory space
c) comes and goes as needed
d) is not easily accessible

xxiii). The FCFS algorithm is particularly troublesome for _____

a) operating systems
b) multiprocessor systems
c) time sharing systems
d) multiprogramming systems

xxiv) Swapping _____ be done when a process has pending I/O, or has to execute I/O operations only into operating system buffers.

a) must never
b) maybe
c) can
d) must

xxv) The operating system is responsible for?

a) bad-block recovery
b) booting from disk

c) disk initialization
d) all of the mentioned

xxvi) Using transient code, _____ the size of the operating system during program execution.

a) maintains
b) changes
c) increases
d) decreases

xxvii) The _____ presents a uniform device-access interface to the I/O subsystem, much as system calls provide a standard interface between the application and the operating system.

a) Device drivers
b) I/O systems
c) Devices
d) Buses

xxviii) The priority of a process will _____ if the scheduler assigns it a static priority.

a) depends on the operating system
b) change
c) remain unchanged
d) none of the mentioned

xxix) On systems where there are multiple operating system, the decision to load a particular one is done by _____

a) process control block
b) file control block
c) boot loader
d) bootstrap

xxx) What are the types of distributed operating systems?

a) Zone based Operating system
b) Level based Operating system
c) Network Operating system
d) All of the mentioned

Group – B
(Multiple Choice Type Questions)

2. Choose the correct alternatives from the followings: 20 x 2 = 40

i) Which one of the following is not correct?

a) kernel remains in the memory during the entire computer session
b) kernel is made of various modules which cannot be loaded in running operating system

c) kernel is the first part of the operating system to load into memory during booting
d) kernel is the program that constitutes the central core of the operating system

ii) In SCSI disks used in high end PCs, the controller maintains a list of _____ on the disk. The disk is initialized during _____ formatting which sets aside spare sectors not visible to the operating system.

a) destroyed blocks, partitioning
b) bad blocks, low level formatting
c) destroyed blocks, high level formatting
d) bad blocks, partitioning

iii) In interactive environments such as time-sharing systems, the primary requirement is to provide reasonably good response time and in general, to share system resources equitably. In such situations, the scheduling algorithm that is most popularly applied is _____.

a) Shortest Remaining Time Next (SRTN) Scheduling
b) Priority Based Preemptive Scheduling
c) Round Robin Scheduling
d) None of the above

iv) Under multiprogramming, turnaround time for short jobs is usually _____ and that for long jobs is slightly

a) Lengthened; Shortened
b) Shortened; Lengthened
c) Shortened; Shortened
d) Shortened; Unchanged

v) 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

vi) A process is selected from the _____ queue by the _____ scheduler, to be executed.

a) blocked, short term
b) wait, long term
c) ready, short term
d) ready, long term

vii) As a shorthand representation of the home directory, the ___ acts.

a) $
b) “”
c) ~
d) %

viii) Which of the following file is executed each time the second shell is called up?

a) profile
b) env.file
c) .script
d) rc file

ix) For avoiding overwrite an existing file, which keyword is used with the set command?

a) noclobber
b) ignore
c) clobber
d) nooverwrite

x) ___ can be used as a keyword with the set command to prevent accidentally logging out.

a) noclobber
b) log out
c) ignore
d) ignoreeof

xi) With round robin scheduling algorithm in a time shared system _____

a) using very large time slices converts it into First come First served scheduling algorithm
b) using very small time slices converts it into First come First served scheduling algorithm
c) using extremely small time slices increases performance
d) using very small time slices converts it into Shortest Job First algorithm

xii) The portion of the process scheduler in an operating system that dispatches processes is concerned with _____

a) assigning ready processes to CPU
b) assigning ready processes to waiting queue
c) assigning running processes to blocked queue
d) all of the mentioned.

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

a) tQ = 15ms
b) tQ = 40ms
c) tQ = 45ms
d) tQ = 50ms

xiv) Consider the set of processes P1, P2 and P3 having burst time 5, 2, 5 milliseconds respectively. The average turnaround time in milliseconds for FCFC scheduling algorithm will be:

a) 8
b) 4
c) 6
d) 7

xv) Consider the set of processes P1, P2 and P3 having burst time 4, 6, 5 milliseconds respectively. The average waiting time in milliseconds for SJF scheduling algorithm will be:

a) 5.33
b) 9.33
c) 8.22
d) 7.23

xvi) Consider the page reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2 with 4 page frames. Number of page faults with LRU Page replacement algorithm?

a) 8
b) 6
c) 9
d) 10

xvii) Consider a reference string: 4, 7, 6, 1, 7, 6, 1, 2, 7, 2. the number of frames in the memory is 3. The number of page faults with Optimal Page Replacement Algorithm is.

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

xviii) Consider a reference string: 4, 7, 6, 1, 7, 6, 1, 2, 7, 2. the number of frames in the memory is 3. The number of page faults with LRU Page Replacement Algorithm is.

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

xix) Consider the set of processes: 1,2,3,4,1,2,5,1,2,3,4,5. How many page faults will occur with five frames?

a) 5
b) 7
c) 8
d) 3

xx) Which of these is not a command of Unix?
a) cd
b) rm
c) pwd
d) del

Answer Key:

Group – A

1. (i) a	(ii) d	(iii) b	(iv) a	(v) a	(vi) a
(vii) c	(viii) b	(ix) d	(x) d	(xi) d	(xii) b
(xiii) b	(xiv) d	(xv) c	(xvi) c	(xvii) d	(xviii) b
(xix) d	(xx) c	(xxi) c	(xxii) c	(xxiii) d	(xxiv) a
(xxv) d	(xxvi) b	(xxvii) a	(xxviii) c	(xxix) c	(xxx) c

Group – B

2. (i) b	(ii) b	(iii) c	(iv) b	(v) c	(vi) c
(vii) c	(viii) d	(ix) a	(x) d	(xi) a	(xii) a
(xiii) a	(xiv) a	(xv) b	(xvi) b	(xvii) b	(xviii) c
(xix) a	(xx) d				