This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY MANAGED

N. G. PATEL POLYTECHNIC

Computer Engineering Department

FORMAT FOR ASSIGNMENTS

Course Name (With Code): Basics of Operating System 4330703

Semester / Year: 3rd Semester /2nd year

Assignment Number: 1

Assignment CO Number: 4330703.A

Sr. No.	Questions related to Course Outcomes
Part – A	Questions carrying 2 Marks
1	Define Operating System. List various types of Operating Systems
2	How do operating systems work?
3	What is the need of OS?
4	Explain OS services.
5	Differentiate User-view of OS v/s System-view of OS.
6	Differentiate Linux OS v/s Windows-XP OS.
Part – B	Questions carrying 3 Marks
1	Explain components of computer system
2	Write down difference between multiprogramming and Multi-tasking operating system.
Part – C	Questions carrying 4 Marks
1	Explain Real time OS.
2	Explain Time-sharing OS.
3	Explain Batch Operating system in detail.
4	Explain multiprogramming OS with example
Part – D	Questions carrying 7 Marks
1	Explain UNIX architecture in detail

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Course Name (With Code): Basics of Operating System 4330703

Semester / Year: 3rd Semester /2nd year

Assignment Number: 2

Assignment CO Number: 4330703.B

Sr. No.	Questions related to Course Outcomes
Part – A	Questions carrying 2 Marks
1	Non-preemptive vs preemptive scheduling
2	Define function dispatcher
3	Explain process mdel
4	Process vs program
5	CPU bound process vs I/O bound process
6	Define following term a) Process table b) CPU burst
Part – B	Questions carrying 3 Marks
1	Type of scheduling queue
2	Explain context switch
3	Independent process and co-operating process
4	Define following term a) Throughput b) Turn Around Time c) Waiting time
5	What is monitor? Explain in detail
6	Preemtable resource and non- preemtable resource
Part – C	Questions carrying 4 Marks
1	Explain PCB
2	Explain process life cycle
3	Type of schedulers
4	Define following term a) Response time b) Race condition c) Mutual exclusion d) Critical section

<table>
<tr><td>5</td><td>Calculate average waiting time and average turnaround time for FCFS algorithm with gantt chart for following data.
<table>
<tr><td>Data Process</td><td>Arrival Time</td><td>Time required for completion</td></tr>
<tr><td>P0</td><td>0</td><td>6</td></tr>
<tr><td>P1</td><td>1</td><td>4</td></tr>
<tr><td>P2</td><td>3</td><td>2</td></tr>
<tr><td>P3</td><td>5</td><td>1</td></tr>
</table></td></tr>
<tr><td>Part – D</td><td>Questions carrying 7 Marks</td></tr>
<tr><td>1</td><td>Calculate average Turn Around Time and average Waiting time for all the algorithm with gannt chart for following data
<table>
<tr><td>Processes</td><td>Time arrival</td><td>Time required for completion</td></tr>
<tr><td>P1</td><td>0</td><td>8</td></tr>
<tr><td>P2</td><td>1</td><td>4</td></tr>
<tr><td>P3</td><td>4</td><td>6</td></tr>
<tr><td>P4</td><td>6</td><td>2</td></tr>
</table></td></tr>
<tr><td>2</td><td>Calculate average waiting time and average turnaround time for SRTN algorithm with gantt chart for following.
<table>
<tr><td>Data Process</td><td>Arrival Time</td><td>Time required for completion</td></tr>
<tr><td>P0</td><td>0</td><td>6</td></tr>
<tr><td>P1</td><td>1</td><td>4</td></tr>
<tr><td>P2</td><td>3</td><td>2</td></tr>
<tr><td>P3</td><td>5</td><td>1</td></tr>
</table></td></tr>
<tr><td>3</td><td>For given process table, find out average Turn Around Time and average Waiting Time using following scheduling algorithms.
i) SRTN
ii) ii) Round Robin (Time quantum = 2ms)
<table>
<tr><td>Process ID</td><td>Arrival Time(ms)</td><td>Burst Time(ms)</td></tr>
<tr><td>P0</td><td>0</td><td>9</td></tr>
<tr><td>P1</td><td>1</td><td>6</td></tr>
<tr><td>P2</td><td>3</td><td>2</td></tr>
<tr><td>P3</td><td>4</td><td>5</td></tr>
</table></td></tr>
<tr><td>4</td><td>Explain FCFS scheduling algorithm. Draw the Gantt chart and find average waiting time for FCFS and SJF algorithms.
<table>
<tr><td>Process</td><td>Duration</td><td>Arrival Time</td><td>Order</td></tr>
<tr><td>P1</td><td>6</td><td>0</td><td>1</td></tr>
<tr><td>P2</td><td>8</td><td>0</td><td>2</td></tr>
<tr><td>P3</td><td>7</td><td>0</td><td>3</td></tr>
<tr><td>P4</td><td>3</td><td>0</td><td>4</td></tr>
</table></td></tr>
<tr><td>5</td><td>List out scheduling algorithm and explain each and every scheduling algorithm with example. Also write advantage and disadvantage of each and every algorithm</td></tr>
<tr><td>6</td><td>What is deadlock? Explain in detail</td></tr>
</table>

7	Describe inter process communication .explain the problem race condition with sutable example	
8	Explain round robin algorithm with example	
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Course Name (With Code): Basics of Operating System 4330703

Semester / Year: 3rd Semester /2nd year

Assignment Number: 3

Assignment CO Number: 4330703.C

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	Write short note on main memory
2	Explain process from memory point of view
3	Differentiate logical address and physical address
4	Write short note on single process monitor
5	Differentiate paging v/s segmentation
Part – B	**Questions carrying 3 Marks**
1	What is memory management? Write the main requirements of memory manager
2	Write short note on memory allocation
3	Write short note on Multiprogramming with fixed partitions or Write short note on static memory management
4	Write short note on Multiprogramming with dynamic partitions or Write short note on dynamic memory management
5	Write short note on IPT?
6	Write short note on TLB
7	Explain various algorithms (strategies) to selection free partitions.
8	Write short note on segmentation
9	Explain in detail demand paging
10	What is swapping? why it is required?
Part – C	**Questions carrying 4 Marks**
1	What is memory reallocation and memory protection? How it is achieved in contiguous memory allocation methods?
2	Write short note on multilevel paging
3	What is fragmentation?
4	Write short note on paging?
5	Write short note on virtual memory
Part – D	**Questions carrying 7 Marks**
1	Explain page memory management in detail

2	Explain memory management with fixed partitions and dynamic partitions
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FORMAT FOR ASSIGNMENTS

Course Name (With Code): Basics of Operating System 4330703

Semester / Year: 3rd Semester /2nd year

Assignment Number: 4

Assignment CO Number: 4330703.D

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	Defined following term LBA
2	Defined following term Seek time
3	Defined following term CHS
4	Differentiate CHS addressing v/s LBA
5	What is a file? Why it is required?
6	List out Directory structure
7	Differentiate Linked allocation v/s indexed allocation
8	Differentiate reliability v/s Protection
9	Differentiate absolute file path v/s relative file path
10	Defined following term Rotational latency
Part – B	**Questions carrying 3 Marks**
1	Explain file system
2	Explain physical structure of hard disk.
3	Explain Logical structure of hard disk.
4	Justify : contiguous allocation method is more suitable for CD-ROMs compared to hard disk
5	Explain in detail File Naming
Part – C	**Questions carrying 4 Marks**
1	Explain file type
2	List out various file operation and describe each of them.

3	Explain allocation of disk space in contiguous allocation method
4	Explain allocation of disk space in Linked allocation method
5	Explain allocation of disk space in indexed allocation method
6	Explain file safety
7	What are the various file structure available? Explain each in brief
8	What are the file attribute? describe file attribute
Part – D	**Questions carrying 7 Marks**
1	List out directory structure. Explain any one type also write advantage and disadvantage of directory structure.
2	File allocation method

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FORMAT FOR ASSIGNMENTS

Course Name (With Code): Basics of Operating System 4330703

Semester / Year: 3rd Semester /2nd year

Assignment Number: 5

Assignment CO Number: 4330703.E

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 2 Marks**
1	List out categories of Linux commands.
2	List out directory command of Linux OS
3	Define : 1) kernel 2) shell
4	Features of UNIX
5	
Part – B	**Questions carrying 3 Marks**
1	Explain cp and comm UNIX commands.
2	Explain Linux directory structure.
3	Explain following commands with examples. (a) cal (b) cat (c) grep (d) sort (e) rm (f) head
4	Explain following commands with examples. (g) cmp (h) diff (i) wc (j) cut (k) paste (l) chmod
5	Write a shell script to concatenate two string and find length of resultant string
Part – C	**Questions carrying 4 Marks**
1	Explain following UNIX command: marks (1) man (2) who (3) ls
2	Write a shell script to find factorial of a given number.
3	Write a shell script to find maximum of 3 number
4	Write a shell script to find whether the given string is palindrome or not
5	Write a shell script to append content of one file in to another
Part – D	**Questions carrying 7 Marks**
1	Write following shell script i) To generate and display Fibonacci series of first 10 number ii) To reverse given input number
2	Explain in brief : Linux directory structure
3	Discuss characteristics of Linux operating system
4	Discuss filter command in Linux with example
5	Write a installation step of Linux .

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