Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind
(Autonomous),Pune – 16
End Semester Examination: March/April 2024
Faculty: Commerce

Program: BBA(Computer Application) Semester:IV **SET: B**
Program (Specific): BBACA07 **Course Type: CC**
Class: SYBBACA **Max.Marks: 70**
Name of the Course: Operating System
Course Code:23-BBACA243 **Time: 2:30 Hrs.**
Paper: -

Instructions to the candidate:

1) ***There are 4 sections in the question paper. Write each section on separate page.***
2) ***All Sections are compulsory.***
3) ***Figures to the right indicate full marks.***
4) ***Draw a well labelled diagram wherever necessary.***

Section A

Q1) Answer the following **[10 x 1 =10 marks]**

1) Which of the following is an operating system?
   a)Linux b)Db4 c) Db2 d) Microsoft
2) Which system call is used for read an open file?
   a)Read b) Write c) Open d) Delete
3) Copying process from memory to disk to allow space for other process is called
   a)Deadlock b) Swapping c) Shifting d) Copying
4) Round Robin Scheduling is designed for _____ system
   a)Time Sharing b) Multiprogramming c) Batch d) Distributed
5) Amongst the following which can be considered as synchronization tool?
   a)Socket b) Mutex c) Semaphore d) Thread
6) A problem encountered in multitasking when a process is perpetually denied necessary resources is called___
   a)Deadlock b) Aging c) Starvation d) Inversion
7) In which of the following page replacement policies Belady's anomaly occurs?
   a)FIFO b) OPT c) MFU d) Program status word
8) What is the another name used for command line interpreter?
   a)Shell b)Kernel c) Command d)Prompt
9) In Layered Operating System which is the highest level?
   a) Hardware b)Kernel c) User Interface d) Command
10) Which system call is used for creating a file?
   a)Read b) Write c) Open d) Close

Section B

Q.2] Answer the Following. (Any 10) **[10x2 =20 M]**

1) Define single-processor system.
2) What is process control block?
3) What is fork() system call.
4) What is CPU Scheduling?
5) List the types of Semaphores.
6) Write any four types of operating system.
7) Write the two types of Real Time System.
8) What is claim age?
9) What is kernel in operating system.
10) What is safe state?
11) Define Belady's Anomaly.
12) What is Long-Term Scheduler?

Section C

Q3) Answer the following. (Any 4) **[5x4=20 M]**

1) Explain the Architecture of UNIX with diagram.
2) Explain file management and system calls related to file manipulation.
3) Calculate the Average Turnaround Time and Average Waiting time for all set of process using FCFS:

Process	Burst Time	Arrival Time
P1	5	1
P2	6	0
P3	2	2
P4	4	0

4) Explain the advantages and disadvantages of swapping .
5) Describe banker's algorithm with suitable example.
6) What is Scheduler? Explain the types of scheduler.

Section D

Q4) Answer the Following (Any 4). **[5x4=20M]**

1) Explain the readers and writers problem which is a classical problem of synchronization?
2) Explain Process Creation in details.
3) With the help of diagram explain swapping .
4) Consider the following snapshot of the system.

Process	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				
P4	0	0	1	4	0	6	5	6				

Answer the following questions using the banker's algorithm.

i)Is the system safe? Justify?

ii)if yes give safe sequence.

5) Explain the types of process state model in detail.
6) Explain services provided by operating system.