

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA/ IMCA Summer 2018 – 19 Examination

Semester: 4**Subject Code: 05101252/ 05301252****Subject Name: Operating System****Date: 17/ 04/2019****Time: 02:00 pm to 04:30 pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Answer the followings.**A. Answer the following questions. (Each of 01 marks)****(05)**

1. Define: Operating System
2. What is Device Driver? List any one function for the same.
3. Write any one advantage of Multiprocessor System.
4. How Deadlock occurs?
5. What do you mean by Page Fault?

B. Multiple choice type questions/ Give the sentence true or false. (Each of 01 marks)**(10)**

1. Which of the following is not the state of a process?
 - a) New
 - b) Testing
 - c) Waiting
 - d) Running
2. Which of the following algorithm tends to minimize or shortest the process flow time?
 - a) First come First served
 - b) Shortest Job First
 - c) Earliest Deadline First
 - d) Longest Job First
3. 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
4. Memory management technique in which system stores and retrieves data from secondary storage is called
 - a) fragmentation
 - b) paging
 - c) mapping
 - d) none of the mentioned
5. Which of the following is not the approach to handling deadlock
 - a) Deadlock prevention
 - b) Virtual deadlock
 - c) Detect and Recover
 - d) none of the mentioned
6. Which of the following is the allocation method of a disk space?
 - a) Contiguous allocation
 - b) Linked allocation
 - c) Indexed allocation
 - d) All of the above
7. In a batch operating system, every process runs to completion before the next process runs. (True or False)?
8. There is no need to have virtual memory on a computer whose physical memory is larger than the size of the address space. (True or False)?
9. What are common security threats in operating system?
 - a) File Sharing
 - b) File sharing and permission
 - c) File corrupting
 - d) File Integrity

10. In a multiprogramming environment :
- the processor executes more than one process at a time
 - the programs are developed by more than one person
 - more than one process resides in the memory
 - a single user can execute many programs at the same time

Q.2 Answer the following questions. (Attempt any five) (Each of 03 marks) (15)

- Mention any three differences between Process and Thread.
- Explain “Banker’s algorithm” for Deadlock avoidance.
- Illustrate “File Sharing” in Operating System.
- Write a Detail note on “Paging”.
- In Linux, what does “cat” and “echo” commands do? Write your answer with appropriate example.
- Write a detail note on Process Control Block.

Q.3 Answer the following questions. (Attempt any three) (Each of 05 marks) (15)

- Write a short note on “Primitive and Non Primitive” Process Scheduling.
- Explain term “Swapping” in memory management with diagram.
- Explain Dining Philosopher’s Problem.
- Explain five process state transition models for a process with diagram.

Q.4 Answer the following questions.

A. Explain any five file attributes and file operations in brief. (05)

B. Based on given pages implement following page replacement algorithms and identify number of page fault. (10)

1 2 3 2 1 5 2 1 6 2 5 6 3 1 3 6 1 2 4 3

- First-In-First-Out
- Optimal
- Least Recently Used

OR

B. Consider the following set of processes, with the length of the CPU service time given in milliseconds. (10)

Process	Arrival Time	Service Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

The processes are assumed to have arrived in the order P1, P2, P3 and P4.

- Draw Gantt chart that illustrate the execution of above given processes using FCFS (First come first serve) and SJF (Shortest Job First) scheduling algorithms.
- Calculate average waiting time for the process for both scheduling algorithms.