

memory of 32 frames. How many bits are there in the logical address? How many bits are there in the physical address? [7]

9. Attempt all parts :

(a) Explain the following : [7]

(i) File types

(ii) File operation

(iii) File attributes

(b) Describe various file access methods. [7]

10. Attempt all parts :

(a) What is Disk Scheduling? Explain FCFS and SCAN disk scheduling algorithms. [7]

(b) Write short note on swap space management. [7]

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Question Paper Code : 8875

BCA (Semester-III) Examination, 2021

OPERATING SYSTEM

[Paper : BCA-303]

Time : Three Hours]

[Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks.

1. Attempt all parts :

(a) What is a Process? Draw and explain process state diagram. [7]

(b) What do you mean by PCB? Where is it used? What are its contents? Explain. [7]

2. Attempt all parts :

(a) List out different services of Operating System and explain each service. [7]

(b) Explain FCFS scheduling algorithm. Find the average turnaround time and average waiting time

for the processes given in the table below.
Assume that all processes are arrived at time 0.

[7]

Process	CPU burst time (in ms)
P1	4
P2	3
P3	3

3. Attempt all parts :

- (a) What are the difference between Multiprocessing and Multiprogramming? [7]
- (b) What is a Process Scheduler? State the characteristics of a good process scheduler?[7]

4. Attempt all parts :

- (a) What is Critical Section? What requirement should be satisfied for a solution to the critical section problem? [7]
- (b) Describe necessary conditions for a deadlock situation to arise. Explain the methods for deadlock prevention. [7]

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5. Attempt all parts :

- (a) What are Semaphores? Explain how it can be used to implement mutual exclusion. [7]
- (b) Define Dining Philosophers problem. [7]

6. Write short notes on the following :

- (a) Trashing [7]
- (b) Virtual memory [7]

7. Attempt all parts :

- (a) When does a page fault occur? Explain any three page replacement strategies/algorithms. [7]
- (b) Consider the following page reference string 7,0, 1,2,0,3,0,4,2,3,0,3,2 1,2,0 1, 7, 10 0, 1. How many page faults would occur for FIFO page replacement algorithm, assuming three frames? [7]

8. Attempt all parts :

- (a) Explain various memory allocation algorithms.[7]
- (b) Consider a logical address space of 8 pages of 2048 words each, mapped on to a physical

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[P.T.O.]