

8. Using Banker's algorithm calculate need matrix, identify whether system is in safe state or not ? If a request for P1 (1, 1, 0) arrives, can the request be granted by system ?

Process	Allocation			Max			Available		
	R1	R2	R3	R1	R2	R3	R1	R2	R3
P0	0	2	1	6	4	2	4	2	4
P1	0	0	1	2	2	1			
P2	2	1	0	3	2	1			
P3	2	0	0	6	0	3			
P4	3	1	1	4	2	2			
P5	1	1	1	2	2	2			

9. What is the difference between internal and external fragmentation ? Discuss the techniques to overcome fragmentation.

BCA-07/DCA-102

June – Examination 2022

BCA (Part II)/DCA Examination

Operating System-I

Paper : BCA-07/DCA-102

Time : 1½ Hours]

[Maximum Marks : 70

Note :- The question paper is divided into two Sections A and B. Write answers as per the given instructions.

Section-A

4×3½=14

(Very Short Answer Type Questions)

Note :- Answer any *four* questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **20** words. Each question carries 3½ marks.

- (i) List any *four* main functions of an Operating System.

- (ii) With a neat diagram, explain various states of a process.
- (iii) Give the definition of a sockets with suitable example.
- (iv) What is Denial of services ? Give an example.
- (v) What is Spooling ? Give an example.
- (vi) What do you mean by Direct Memory Access ?
- (vii) Give any *four* difference between Peer-to-Peer computing and client server computing.
- (viii) What do you mean by critical section ?

Section-B **4×14=56**

(Short Answer Type Questions)

Note :- Answer any *four* questions. Answer should not exceed **200** words. Each question carries 14 marks.

- 2. What is a system call ? Explain in detail the system call sequence to copy the contents of one file to another file.

- 3. Define Virtual Memory. Explain the process of converting virtual addresses to physical addresses with a neat diagram.
- 4. What is Semaphore ? Explain its implementation as wait and signal for providing process synchronization.
- 5. Consider the following page reference string 1, 2, 3, 4, 5, 2, 6, 7, 3, 2, 4, 1, 7, 1, 4, 3, 2, 3, 4, 7, 1. Compare the number of page faults with frame sizes 3, 4 and 5 with any replacement algorithm.
- 6. Explain the encryption and decryption mechanism with a suitable example.
- 7. Does preemptive scheduling give same performance as non-preemptive scheduling algorithm ? Compare their performance by assuming at least 5 processes arrived at different time intervals.