

6. (a) Draw and explain Process Control Block (PCB).
(b) Write the name of various page replacement algorithms. Explain any two methods.
7. (a) Define and explain the concept of virtual memory. Write the advantages of using virtual memory.
(b) Write a short note on Resource Allocation graph.

BCA-402(N)

2,200

(B-52)

Roll No. 0802569**BCA-402(N)**

B. C. A. (Fourth Semester)
EXAMINATION, May, 2018

(New Course)

Paper Second

OPERATING SYSTEM

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A**(Short Answer Type Questions)**

Note : All questions are compulsory. Each question carries 3 marks.

1. (A) Define operating system. Describe briefly the kind of services provided by an operating system.
(B) What are the main functions of memory management ?
(C) Name the various file access methods with explanation.
(D) What is Spooling ? Draw a diagram and explain.

(B-52) P. T. O.

[2]

BCA-402(N)

- (E) Discuss shared devices and virtual devices for device management.
- (F) Write the advantages and disadvantages of demand paging.
- (G) Write the comparison between paging and segmentation.
- (H) Differentiate the logical and physical address with an example.
- (I) What is the role of critical section in process synchronization ?

Section—B

(Long Answer Type Questions)

Note : Attempt any two questions. Each question carries 12 marks.

2. Consider the following set of jobs with their arrival time, execution time (in minutes) :

Job	Arrival Time	Execution Time
A	0	5
B	1	15
C	3	12
D	7	25
E	10	5

Calculate the average waiting time for FCFS, SJF preemptive, SJF non-preemptive.

3. (a) Write the name of disk scheduling algorithms. Write the method and explain the working of any three methods.

(B-52)

[3]

BCA-402(N)

- (b) Draw and explain various levels of directory structures.
4. (a) What is the fragmentation problem ? Describe internal and external fragmentation.
- (b) Explain the terms mutual exclusion, hold and wait, preemption and circular wait in deadlocks with examples.

Section—C

(Long Answer Type Questions)

Note : Attempt any two questions. Each question carries 12 marks.

5. Consider the following current resource allocation state :

Process	Allocation			Maximum			Available		
	A	B	C	A	B	C	A	B	C
P ₁	2	2	3	3	6	8	7	7	10
P ₂	2	0	3	4	3	3			
P ₃	1	2	4	3	4	3			

Answer the following questions using Banker's algorithm :

- (i) What is the content of the Need Matrix ?
- (ii) Is the system in safe state ?

(B-52) P. T. O.