

S.No. : 356

BCA 4202

No. of Printed Pages : 04

Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 41106

Roll
No.

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BCA Examination 2021-22

(Even Semester)

BASICS OF OPERATING SYSTEM

Time : Three Hours]

[Maximum Marks : 60

Note :- Attempt all questions.

SECTION - A

1. Attempt all parts of the following : $8 \times 1 = 8$

- Define operating system.
- What is the Kernel?
- Describe real time system.
- What do you mean by a process?
- Differentiate between process and program.
- What is the use of paging in operating system?

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- (g) What is virtual memory?
- (h) Describe deadlock.

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$
- (a) Discuss the influence of non-contiguous allocation of disk space on the feasibility and effectiveness of the fundamental file organizations.
 - (b) What are the advantages of inter-process communication? Also explain various implementations of inter-process communication.
 - (c) How does deadlock avoidance differ from deadlock prevention? Write about deadlock avoidance algorithm.
 - (d) Consider the following page reference string :

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7,
6, 3, 2, 1, 2, 3, 6

How many page faults would occur for the LRU page replacement algorithm, assuming three frames.

SECTION – C

Note :- Attempt all questions. Attempt any two parts from each questions. 5×8=40

3. (a) Define a distributed file system. Explain location transparency and location independence.
- (b) Explain external fragmentation. How the compaction can be used to solve the problem of external fragmentation?
- (c) When does a process terminate? Which system call is used to terminate a process?
4. (a) Describe thrashing. How can the problem of thrashing be prevented?
- (b) Describe directories. List different types of directory structures with examples.
- (c) Explain the allocation of disk space.
5. Suppose the following process arrive for execution at the time indicated :

Process	Arrival Time	Burst Time
P ₁	0	8
P ₂	1	4
P ₃	2	9
P ₄	3	5

What is the average waiting and turn around time for these processes with :

- (a) FCFS scheduling algorithm.
 - (b) Preemptive SJF algorithm.
 - (c) Non-preemptive SJF algorithm.
6. (a) Explain various layers of I/O software. Explain the function of each layer.
- (b) What is Page Fault? What are the steps to be followed by operating system after occurring page fault?
- (c) Explain Spooling. What is the difference between spooling and buffering?
