No. of Printed Pages : 04

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

PAPER ID : 21107 Roll No.

BCA Examination 2021-22

(Even Semester)

OPERATING SYSTEM

Time : Three Hours]   *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION – A

1. Attempt all parts of the following :   8 × 1 = 8

    (a) What is the relationship between multi-programming and throughput of a system?

    (b) Define context switching.

    (c) Define the term critical section.

    (d) What are the necessary conditions for dead-lock?

[P. T. O.

(e) Define the term frames and bages.

(f) What is basic function of paging?

(g) Name various file attributes.

(h) Give a difference of sequential and direct method of file access.

SECTION – B

2. Attempt any two parts of the following :   2×6=12

(a) For the following example calculate average turnaround time and average waiting time for the following algorithm :

(i) FCFS

(ii) Round Robin (1 time unit)

Process	Arrival time	Burst Time
P_1	0	8
P_2	1	4
P_3	2	9
P_4	3	5

(b) Explain semaphores along with its types.

(c) What is address binding during processing of a user program? Describe different types of address binding.

(d) Define the terms seek time, access time and rotational latency.

SECTION – C

Note :– Attempt all questions from this section.

10×4=40

3. Attempt any two parts of the following :

(a) List and explain the services of an operating system.

(b) What is a process? Explain various process states with the help of a diagram.

(c) Describe the contents and need of those contents in a Process Control Block (PCB).

4. Attempt any two parts of the following :

(a) Describe the producer-consumer problem of synchronization.

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(b) With an example describe how resource allocation graph is useful in deadlock-detection?

(c) What is deadlock? What are the techniques of deadlock handling?

5. Attempt any two parts of the following :

(a) Give the advantages and disadvantages of paging.

(b) What is Belady's anomaly? How it is related to page replacement policy?

(c) Explain the concept of swapping why it i required?

6. Attempt any two parts of the following :

(a) Describe any two of the file accessing methods in detail.

(b) Describe directory structure and its types.

(c) Describe executable file, object file and batch file with its uses.

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