# 311301

## Jan. 2022
## BCA - III SEMESTER
## Introduction to Operating System (BCA-17-201)

Time : 90 Minutes]　　　　　　　　[Max. Marks : 25

*Instructions :*

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*

2. *Answer any three questions from Part-B in detail.*

3. *Different sub-parts of a question are to be attempted adjacent to each other.*

## PART-A

1.　(a)　Explain the role of bootstrap program.　(1)

　　(b)　What is throughput?　(1)

　　(c)　Differentiate Program and Processes.　(1)

　　(d)　Why deadlock occurs?　(1)

　　(e)　What is Semaphore?　(1)

　　(f)　Define the term Seek Time.　(1)

　　(g)　What is Thrashing?　(1)

　　(h)　What is Segmentation?　(1)

(i)  List out the major attributes of a file.  (1)

(j)  Name a method to control external fragmentation.  (1)

## PART-B

2.  Differentiate Monolithic, Microkernel and Exo-Kernel architecture of OS.  (5)

3.  (a)  What are the necessary and sufficient conditions to check the deadlock?  (2)

(b)  Explain Paging in brief.  (3)

4.  Schedule the following scenario using Round-Robin Scheduling with time quantum = 2 and calculate average waiting time.

| Process | Arrival time | Execution time |
|---------|--------------|----------------|
| P1 | 0 | 3 |
| P2 | 2 | 3 |
| P3 | 3 | 2 |
| P4 | 5 | 4 |
| P5 | 6 | 5 |

(5)

5.  Compare the performance of FIFO page replacement for the following demand sequence if number of frames = 3 and 4, also check for be-lady's anomaly.

| Demand | 5 | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 4 | 3 | 0 | 3 | 2 | 1 | 3 | 0 | 1 | 5 |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sequence | | | | | | | | | | | | | | | | | | |

(5)

6. Differentiate Scan and C-Scan disk scheduling with appropriate example. (5)

_____