

U.G. 3rd Semester Examination - 2020**BCA****Course Code : BBCACCHC302****Course Title : Principles of Operating System**

Full Marks : 30

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **ten** questions: $1 \times 10 = 10$
- What are the advantages of multiprocessor system?
 - Which process can be affected by other processes executing in the system?
 - What are overlays?
 - What do you mean by system call?
 - Define multitasking.
 - What is dispatch latency?
 - Define co-operative process.

- Define external fragmentation.
- What is long term scheduler?
- What are the types of Real Time Operating System?
- What is spooling?
- Define starvation.
- Define seek time.
- Define overlays.
- Write the names of different file attributes.

2. Answer any **five** questions: $2 \times 5 = 10$

- What are CPU-bound and I/O bound processes?
- 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 FIFO?
- When Mid-term scheduler decides to swap out a process?
- Explain SSTF (Shortest Seek Time First) disk scheduling algorithm.
- Differentiate contiguous and non-contiguous memory allocation.
- Define inter process communication.

g) Describe different implementation techniques of LRU page replacement.

h) What is thrashing?

ii) What is internal fragmentation?

4+1=5

3. Answer any **two** questions: $5 \times 2 = 10$

a) Describe binary semaphore and counting semaphore. 5

b) i) Describe Banker's Algorithm.

ii) Consider the following snapshot of a system:

Process	Allocation	Max	Available
	A B C D	A B C D	A B C D
P0	0 0 1 2	0 0 1 2	1 5 2 0
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

Using Banker's Algorithm check if the system is in safe state or not. $2\frac{1}{2} + 2\frac{1}{2} = 5$

c) i) Discuss about Demand Paging with a suitable diagram.