Total No. of Questions : 5]

SEAT No. :

P2137

[Total No. of Pages : 3

[5803]-403

S.Y. B.B.A.(C.A.)

CA - 403 : OPERATING SYSTEM

(2019 Pattern) (CBCS) (Semester - IV)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer all questions.***
2) ***Figures to the right side indicate full marks.***

Q1) Attempt any eight of the following : **[8 × 2 = 16]**

a) Define the term operating system.

b) What is meant by multiprocessing system?

c) What is process?

d) Which scheduler controls the degree of Multiprogramming?

e) Define Burst Time.

f) What is semaphores?

g) What do you mean by Rollback?

h) What is meant by Address Binding?

i) List various operation on File.

j) What do you mean by Seek Time in Disk Scheduling?

Q2) Attempt any four of the following : **[4 × 4 = 16]**

a) List and explain advantages of Multiprocessor system.

b) Explain Process Control Block (PCB) in detail with diagram.

c) Explain different method for recovery from a deadlock.

d) What is Fragmentation? Explain types of fragmentation in details.

e) Calculate average turn around time and average waiting time for all set of processes using FCFS algorithm.

P.T.O.

Processes	Burst Time	Arrival Time
P_1	5	1
P_2	6	0
P_3	2	2
P_4	4	0

Q3) Attempt any four of the following : **[4 × 4 = 16]**

a) List and explain system calls related to Process and Job control.

b) Explain multilevel Feedback queue Algorithm.

c) Describe in detail the 'Dinning Philosopher Problem' Synchronization problem.

d) Write a note on interrupts.

e) Consider the following page reference string:

4, 6, 7, 8, 4, 6, 9, 6, 7, 8, 4, 6, 7, 9.

The number of Frames is 3. Show page trace and calculate page Fault for the following page replacement schemes.

i) FIFO ii) LRU

Q4) Attempt any four of the following: **[4 × 4 = 16]**

a) What is meant by Free Space Management? Define Bit vector and Grouping.

b) Define the terms :

i) Logical Address ii) Physical Address

c) Explain Resource Allocation Graph in detail.

d) What are the difference between Preemptive and Non-Preemptive Scheduling.

e) Assume there are total 0-199 tracks that are present on each surface of the disk. If request queue is 68, 172, 4, 178, 130, 40, 118 and 136 initial position of the head is 25. Apply FCFS disk scheduling algorithm & calculate total head Movement.

Q5) Write a short note on any two of the following : **[2 × 3 = 6]**

a) Write short note on solution for critical section problem.

b) Write a short note on Medium-term schedular.

c) Explain Indexed Allocation briefly.

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