Total No. of Questions : 5]

SEAT No. :

PB-1468

[Total No. of Pages : 2

[6226]-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) Write any two services provided by OS.

b) What is meant by System Call?

c) What is process?

d) Define a safe state?

e) Define Dispatcher.

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 Deadlock?

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

a) Explain Operating System Structure.

b) Explain 'Dining Philosopher' Synchronization problem.

c) Explain different method for recovery from a deadlock.

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

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

P.T.O.

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

a) State and explain Critical Section Problem.

b) Explain different methods for recovery from deadlock.

c) State and explain Critical Section Problem.

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

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

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 Shortest Seek Time First? Explain in details.

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 a note on interrupts.

b) Explain semaphores and its types in detail.

c) Write Short note on fragmentation.

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