

Total No. of Questions : 5]

SEAT No. :

P6012

[Total No. of Pages : 2

[6144]-403

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

CA - 403 : OPERATING SYSTEM

(2019 Pattern) (Semester -IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicates full marks.*

Q1) Attempt any 8 of the following.

[8×2=16]

- a) Define process.
- b) What is context switch?
- c) What is a page frame?
- d) List various operations on files.
- e) What is meant by rotational latency in disk scheduling?
- f) Define critical section.
- g) State Belady's anomaly.
- h) List any 4 characteristics of operating system.
- i) Define dead lock.
- j) What is the role of operating system?

Q2) Attempt any 4 of the following.

[4×4=16]

- a) 'Operating system is like a manager of the computer system'. Explain.
- b) What is scheduling? Compare short term scheduler with medium term scheduler.
- c) Draw and explain process control block. (PCB).
- d) Compare multiprogramming with a multiprocessing system.
- e) Draw and explain the process state diagram.

P.T.O.

Q3) Attempt any 4 of the following.

[4×4=16]

- Compare internal and external fragmentation.
- Consider the following set of processes with the length of the CPU burst time given in milli seconds.

Process	Burst Time
P1	10
P2	1
P3	2
P4	1
P5	5

All processes arrived at time () in the order P1, P2, P3, P4, P5.

- Draw Gantt chart using SJF method.
 - Calculate average turnaround time and average waiting time.
- Explain semaphores and its types.
 - What is deadlock? Explain various deadlock handling techniques.
 - What are the different types of directory structure? Explain.

Q4) Attempt any 4 of the following.

[4×4=16]

- Explain linked allocation in files.
- Compare paging and segmentation.
- Assume there are total 200 tracks present on the disk. If the request queue is:
84, 145, 89, 168, 93, 128, 100, 68 and initial position of head is 125.
Apply FCFS disk scheduling algorithm and calculate total head movement.
- Explain file structure with the help of a diagram.
- Consider the following page reference string
9, 2, 3, 4, 2, 5, 2, 6, 4, 5, 2, 5, 4, 3, 4, 2, 3, 9, 2, 3
The number of page frames is 4. Calculate the page faults for the given page replacement scheme using FIFO (First in first out)

Q5) Write short note any two :

[2×3=6]

- Spooling.
- Dining Philosopher's problem.
- Contiguous memory allocation.

