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SEAT No. :

PA-1023

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T.Y. B.Sc. (Computer Science)

CS-351 : OPERATING SYSTEMS-I

(CBCS) (2019 Pattern) (Semester - V) (Paper - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates :

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Use suitable data if necessary.

Q1) Attempt any Eight of the following :

[8 × 1 = 8]

- a) What is a shell?
- b) Define the I/O Bound process.
- c) Define the term semaphore.
- d) What is a thread library?
- e) What is synchronisation?
- f) What is physical address space?
- g) What is context switching?
- h) What is page?
- i) Define the term dispatcher?
- j) What is booting?

Q2) Attempt Any Four of the following :

[4 × 2 = 8]

- a) Write advantages of distributed operating systems.
- b) Compare preemptive and non preemptive scheduling?
- c) List out functions of memory management.

P.T.O.

- d) List the types of schedulers and also explain short term schedulers in detail.
- e) Define independent and dependent processes.

Q3) Attempt Any Two of the following : **[2 × 4 = 8]**

- a) Explain multi threading model in detail.
- b) Which three requirements must be satisfied while designing a solutions to the critical section problem? Explain in detail.
- c) Consider the following set of processes with the length of cpu burst time and arrival time in milliseconds.

processes	B.T	A.T
P1	5	1.5
p2	1	0
p3	2	2
p4	4	3

Compute total waiting time and turnaround time using preemptive SJF scheduling algorithm

Q4) Attempt Any Two of the following : **[2 × 4 = 8]**

- a) Describe PCB with all its fields.
- b) Explain bounded buffer problem in detail.
- c) Consider the following reference string and find out the total number of page faults using OPT and FIFO. Assume no of frames are 3
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3

Q5) Attempt Any One of the following : **[1 × 3 = 3]**

- a) Differentiate between client server and peer to peer computing environments
- b) Describe segmentation in detail.

