

Total number of printed pages-3

53 (IT 502) OPSY

2019

OPERATING SYSTEM

Paper : IT 502 (Back)

Full Marks : 100

Time : Three hours



The figures in the margin indicate full marks for the questions.

Answer **any five** questions.

1.

5×4=20

- (a) Define Operating System. List the objectives of an operating system.
- (b) With a neat diagram, explain various states of a process.
- (c) Give the Peterson's solution to the critical-section problem.
- (d) Distinguish between Logical and Physical address space.

Contd.

2. (a) What are the advantages of Inter-process communication? How communication takes place in a shared-memory environment? Explain. 10
- (b) What is a critical-section problem? Give the conditions that a solution to the critical-section problem must satisfy. 10
3. (a) What is a system call? Explain with examples the various types of system calls provided by an Operating System. 10
- (b) Distinguish between preemptive and non-preemptive scheduling. Explain each type with examples. 10
4. (a) What is Deadlock? Discuss the necessary conditions that cause deadlock situation to occur. 10
- (b) How does deadlock avoidance differ from deadlock prevention? Write about a deadlock avoidance algorithm in detail. 10

5. (a) Illustrate the page replacement algorithm (i) FIFO (ii) Optimal page replacement using the reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for a memory with three frames. 10
- (b) What is an I/O module? Explain briefly the three different I/O techniques used in various I/O operations. 10

6. Write short notes on : 5x4=20

- (a) Readers and writers problem
- (b) Demand paging
- (c) Monolithic system
- (d) Thread scheduling.

