

**B.Sc. Semester-III Examination, 2022-23****COMPUTER SCIENCE [Honours]**

Course ID : 31512

Course Code : SH/CSC/302/C-6

**Course Title : Operating Systems – Theory**

Time : 1 Hour 15 Minutes

Full Marks : 25

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*Answer **all** the questions.**UNIT-I**1. Answer any **five** of the following questions:

1×5=5

- a) What do you mean by a batch operating system?
- b) Cite an application of real time operating system.
- c) Why does an operating system make a system call?
- d) What is a thread?
- e) Name a method used for inter-process communication.

*[Turn Over]*

- f) Which address space is hypothetically larger-physical or virtual?
- g) What is a file?
- h) Why is authentication needed?

**UNIT-II**2. Answer any **two** of the following questions :

5×2=10

- a) What is semaphore? Explain the role of semaphore in solving the critical section problem in brief with an example. 1+4=5
- b) Describe any one method for implementing virtual memory in brief.
- c) Describe the various operations on a file which are controlled by the operating system.
- d) Describe the role of an operating system in giving protection and security to processes in brief.

**UNIT-III**3. Answer any **one** of the following questions :

10×1=10

- a) What do you mean by deadlock? State the conditions which necessities deadlock occurrence. Relate deadlock avoidance, prevention and handling. 2+5+3=10

b) Describe the following CPU-scheduling algorithms with suitable examples:

$$5+5=10$$

- Shortest-Job-First
- Round-Robin

-----