5215

B. A./B. Sc. EXAMINATION

(Fourth Semester)

COMPUTER SCIENCE

Paper IV

Operating System

Time : Three Hours   Maximum Marks : $\begin{cases} \text{B.Sc.} : 30 \\ \text{B.A.} : 20 \end{cases}$

Note : Attempt *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks. (For B.Sc. students, each question carries 6 marks and for B.A. students each question carries 4 marks).

1. B. Sc. Students attempts all the six parts in this question and B. A. students attempt any *four* parts. Each part carries 1 mark.

    (a) What are tracks and sectors in a disk ?

    (b) Define process.

(c) What is scheduling criteria ?

(d) Define CPU utilization.

(e) What are various functions of Operating System ?

(f) Define GUI and CUI.

Unit I

2. What are the components of an operating system ? Discuss the major Activities of each system components.

3. Write notes on the following :

   (a) Explain the functions of operating system

   (b) Differentiate between real time system and distributed system

   (c) O/S service system call.

Unit II

4. What is various process states ? How the transition between various states of process does take place ?

5. What is deadlock ? What are the necessary conditions for deadlock ? Explain the deadlock prevention and avoidance.

Unit III

6. (a) Discuss about semaphores.

   (b) What is meant by critical section problems and process synchronization ?

7. Write notes on the following :

   (a) Swapping

   (b) Virtual memory

   (c) Page replacement in memory.

Unit IV

8. Explain Disk scheduling and various methods of disk scheduling.

9. Define functions of system and file protection mechanisms.