Subject Code—6813

M.C.A. (Fourth Year) EXAMINATION

(5 Years Integrated Course)

(Main/Re-appear)

MCA-404

OPERATING SYSTEM-II

Time : 3 *Hours*   *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

(a) What is an Operating System ? Discuss the components of an operating system.

10

(b) An operating system act · as resource manager. Justify this with respect to the functionality of an operating system. **10**

2. Define the essential properties of the following types of operating system :

   (i) Batch

   (ii) Interactive

   (iii) Time-sharing

   (iv) Real-time

   (v) Distributed.

   $5 \times 4 = 20$

3. (a) Describe the differences among short-term, medium-term and long-term scheduler.

   10

   (b) Explain the process state and process control block.

   10

4. What is the significance of scheduling algorithm in operating system ? What is the advantage of priority scheduling over round robin scheduling. Explain with suitable example.

   20

5. How is a deadlock characterized ? Explain the term detection, recovery and prevention in context of deadlock. Explain one method for deadlock. Explain one method for deadlock avoidance.

   20

6. What is a page fault ? What happens when a page fault occur ? Compare the following page replacement algorithm with respect to optimality :

   (i) First-in, first-out page replacement

   (ii) Least recently used page replacement

   (iii) Optimal page replacement.

   20

7. What is disk scheduling ? Explain various disk scheduling algorithm with example.

   20

8. Explain the following terms :

   (i) Threads

   (ii) Blocks and fragments

   (iii) Security in Unix

   (iv) Semaphores.

   $4 \times 5 = 20$