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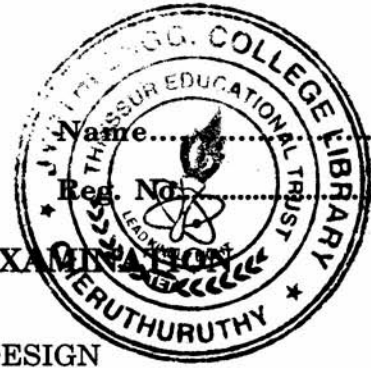# FIRST SEMESTER M.TECH. DEGREE EXAMINATION
JANUARY 2015

MCS 10 102—OPERATING SYSTEM DESIGN

Time : Three Hours   Maximum : 100 Marks

*Answer any **five** questions by choosing atleast **one** question from each module.*

Module I

1. (a) What are system calls ? Illustrate the flow of control during the system call with a neat sketch. Also give the list of system calls used for process management and communication.

    (12 marks)

    (b) Describe the design of interface using file system calls as an example.   (8 marks)

2. (a) Explain about parallel systems and race conditions with a shared process table in parallel systems.

    (10 marks)

    (b) Explain system call interrupt handling with neat flowchart.   (10 marks)

Module II

3. (a) Describe the IPC pattern for client-server.   (10 marks)

    (b) Explain in detail about semaphores and its implementation methods.   (10 marks)

4. (a) Write a note on linking and relocation of object modules.   (8 marks)

    (b) Explain about memory management system calls.   (12 marks)

Module III

5. (a) Write notes on swapping and overlays.   (10 marks)

    (b) How paging is handled using software page table lookups. Discuss.   (10 marks)

6. (a) Give a brief note on how memory management is implemented in Linux.   (10 marks)

    (b) Briefly discuss on file abstraction.   (10 marks)

Module IV

7. (a) Explain in detail about the implementation of security in Windows NT.   (10 marks)

    (b) Discuss the different ways of representing the protection information.   (10 marks)

8. (a) Explain about the software protection mechanism with examples and how it is implemented.

    (10 marks)

    (b) Explain about the resource management issues.   (10 marks)

[5 × 20 = 100 marks]