

Name: \_\_\_\_\_

Roll No.: \_\_\_\_\_

**THE LNM INSTITUTE OF INFORMATION TECHNOLOGY, JAIPUR**  
**MIDTERM EXAM 1-OPERATING SYSTEMS (2013-2014)**

Time: 1 Hr.

Max. Marks: 30

1. Fill in the blanks: (13)
  - a. A system program combining the separately compiled modules of a program into a form suitable for execution is called \_\_\_\_\_
  - b. The program that loads the Operating System is the \_\_\_\_\_
  - c. Supervisor state is only allowed to the \_\_\_\_\_
  - d. The technique that allows to execute a program which is not entirely in memory is called \_\_\_\_\_
  - e. \_\_\_\_\_ is a technique of temporarily removing inactive programs from the memory of computer system.
  - f. The main function of the command interpreter is to \_\_\_\_\_
  - g. The state of a process after it encounters an I/O instruction is \_\_\_\_\_
  - h. \_\_\_\_\_ technique was introduced because a single program could not keep both the CPU and the I/O devices busy.
  - i. Switching the CPU to another process requires saving state of the old process and loading new process state. This is called \_\_\_\_\_
  - j. The kernel keeps track of the state of each task by using a data structure called \_\_\_\_\_
  - k. The degree of multiprogramming is controlled by \_\_\_\_\_
  - l. \_\_\_\_\_ pathname begins at the root and follows a path down to the specified file.
  - m. The two basic models of Inter Process Communication are \_\_\_\_\_ and \_\_\_\_\_
2. Write any four file attributes. (2)
3. What is the difference between policy and mechanism in Operating System design. Give example. (2)
4. What do the fork () and exec () commands do? (3)
5. What are the four major activities of an operating system in regard to process management? (2)
6. What is meant by graceful degradation? (1)
7. Give four characteristics of a child process. (2)
8. A program P1 consists of a single loop which executes 50 times. The loop contains a computation which consumes 50 msec and an I/O operation which lasts for 200 msec.

- a) Compute the elapsed time of the program if it is executed in an OS which does not support multiprogramming. (Elapsed time is the clock time since the start of the program to its end.)
- b) If the program is executed in a multiprogramming OS, by means of a diagram, show the CPU and I/O activities of the system if the program P1 has the second-highest priority in the system. The highest priority program P2 executes computations for 500 msec followed by an I/O operation which consumes 200 msec. Compute the elapsed time of the program P1. (1+4)