## 

**DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY**

**Subject Name:** Operating System  **Subject Code: CSH206B-T**

**Topic:** Process Management

**Tutorial :4**

**Aim: To gain familiarity with concept of OS Process Management**

**Course Outcome: CO3**

**Blooms Taxonym: BT1, BT2**

**SOLUTION IN SOLVED TUTORIAL, TUTORIAL-4**

**Section – A**

**True/false**

1. A classic process normally has a shared address space.
2. A modern process creation system call must always define a thread.
3. Whenever a process calls fork(), a new child process is created with its own copies of the parent’s program text, data, and stack segments, and access to all open file descriptors.
4. After the child has been created, both the parent and child processes are ready to use the processor, as they each have their own abstract machine.
5. An object’s behavior is defined completely by its class definition.

**Short Answer**

1. A modern process creation system call usually creates a \_\_\_\_\_\_\_\_\_\_\_\_\_ to execute within the process.
2. The operating system maintains a data structure called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to keep all the details required to manage a process.
3. With the UNIX fork() call, a child’s behavior is completely defined by

\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. \_\_\_\_\_\_\_\_\_\_ was a model of an autonomous entity to represent the operation of such a unit within a simulated system.
2. A class is similar to an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that maintains its own state in its private variables and can be executed as an autonomous unit of computation.

**Multiple Choice**

1. Which statement about resources is false?
   1. A process/thread must request a resource before using it
   2. The operating system can provide resources
   3. Resources may be requested from another process
   4. A thread suspends its operation until a requested resource is allocated.
2. Files are distinguished from other resources except that
   1. The interface is exceptionally complex as compared with most other resources.
   2. They are the prevalent form of storing information
   3. Operating systems often use the file as a primitive for modeling other resource abstractions
   4. UNIX pipes can be modeled as files
3. Operating system-supplied resources include the following except
   1. Processor
   2. Time
   3. Keyboards
   4. Displays
4. Thread status may include the following except
   1. Which resource is being waited on, if blocked
   2. Address of the next instruction to execute
   3. Whether or not the thread is blocked waiting for a resource
   4. Address of the first instruction in the program
5. Early process abstraction primitives included the following except
   1. FORK()
   2. RESTART()
   3. QUIT()
   4. JOIN()
6. A UNIX process contains each of the following except
   1. Text segment
   2. Data segment
   3. Thread segment
   4. Stack segment

**Section – B**

**Answer the following Questions**

1. Put the following in the chronological order in the context of the birth of a process executes: Ready, suspended, execute, terminate, create.
2. When a process requests for I/O, how many process switches take place?
3. A Shortest Job First algorithm may lead to starvation where a process with large execution time is made to wait for indefinitely long times. Suggest a modification to the SJF that overcomes this problem.
4. If the waiting time for a process is *p* and there are *n* processes in the memory then the CPU utilization is given by,
   1. p/n
   2. p^n (p raised to n)
   3. 1-p^n
   4. n-(p^n)

at an average of six processes per minute vice time. Estimate the fraction of time the CPU is busy in a system with a single processor.

1. In context of food serving in a restaurant suggest the states involved in the service via role play.