**Chapter 3 – Process Description and Control**

**TRUE/FALSE QUESTIONS:**

T F 1)  A computer platform consists of a collection of hardware resources, such as the

processor, main memory, I/O modules, timers, and disk drives.

T F 2)  For efficiency, applications should be written directly for a given hardware platform.

T F 3)  A design change in the structure or semantics of the process control block could affect

a number of modules in the OS.

T F 4)   The process control block is the key tool that enables the OS to support multiple

processes and to provide for multiprocessing.

T F 5)  It is not the responsibility of the operating system to control the execution of processes.

T F 6)  The first step in designing an OS to control processes is to describe the behavior that we

would like the processes to exhibit.

T F 7)  The OS may create a process on behalf of an application.

T F 8)  Swapping is not an I/O operation so it will not enhance performance.

T F 9)  If a system does not employ virtual memory each process to be executed must be fully

loaded into main memory.

T F 10)  A process that is not in main memory is immediately available for execution, regardless

of whether or not it is awaiting an event.

T F 11)  The OS may suspend a process if it detects or suspects a problem.

T F 12)  All processor designs include a register or set of registers, often known as the program

status word, which contains status information.

T F 13)  The process control block is the least important data structure in an OS.

T F 14)  A process switch may occur any time that the OS has gained control from the currently

running process.

T F 15)  The principal function of the OS is to create, manage, and terminate processes.

**MULTIPLE CHOICE QUESTIONS:**

1. The processor itself provides only limited support for multiprogramming, and \_\_\_\_\_\_\_\_\_\_ is needed to

manage the sharing of the processor and other resources by multiple applications at the same time.

A)  memory   B)  data

C)  software   D)  hardware

1. "The process was placed in a suspended state by an agent; either itself, a parent process, or the OS,

for the purpose of preventing its execution," is a characteristic of a \_\_\_\_\_\_\_\_\_ process.

A)  blocked   B)  suspended

C)  ready   D)  swapped

1. A(n) \_\_\_\_\_\_\_\_\_\_ is a unit of activity characterized by the execution of a sequence of instructions, a current

state, and an associated set of system resources.

A)  identifier   B)  process

C)  state   D)  kernel

1. We can characterize the behavior of an individual process by listing the sequence of instructions,

referred to as a \_\_\_\_\_\_\_\_\_\_, that executes for that process.

A)  state   B)  trace

C)  process block   D)  priority

5)  It is the principal responsibility of the \_\_\_\_\_\_\_\_\_\_ to control the execution of processes.

A)  OS   B)  process control block

C)  memory   D)  dispatcher

6)  When one process spawns another, the spawned process is referred to as the \_\_\_\_\_\_\_\_\_\_ .

A)  trap process   B)  child process

C)  stack process   D)  parent process

7)  \_\_\_\_\_\_\_\_\_\_ involves moving part or all of a process from main memory to disk.

A)  Swapping   B)  Relocating

C)  Suspending   D)  Blocking

8)  When a process is in the \_\_\_\_\_\_\_\_\_ state it is in secondary memory but is available for execution

as soon as it is loaded into main memory.

A)  Blocked   B)  Blocked/Suspend

C)  Ready   D)  Ready/Suspend

9)  A process is in the \_\_\_\_\_\_\_\_\_ state when it is in main memory and awaiting an event.

A)  Blocked   B)  Blocked/Suspend

C)  Ready/Suspend   D)  Ready

10)  The OS must maintain \_\_\_\_\_\_\_\_\_\_ tables to manage processes.

A)  process   B)  I/O

C)  memory   D)  file

11)  The collection of program, data, stack, and attributes is referred to as the \_\_\_\_\_\_\_\_\_ .

A)  process structure   B)  process control block

C)  process location   D)  process image

12)  The \_\_\_\_\_\_\_\_\_ is the less-privileged mode.

A)  user mode   B)  kernel mode

C)  system mode   D)  control mode

13)  The \_\_\_\_\_\_\_\_\_\_ contains the basic elements of a user’s program and can be generated

directly from a compiled object file.

A)  register context   B)  user-level context

C)  system-level context   D)  all of the above

14)  A total of \_\_\_\_\_\_\_\_\_ process states are recognized by the UNIX SVR4 operating system.

A)  3   B)  9

C)  21   D)  15

15)  The portion of the operating system that selects the next process to run is called the \_\_\_\_\_\_\_\_\_ .

A)  trace   B)  process control block

C)  dispatcher   D)  PSW

**SHORT ANSWER QUESTIONS:**

1. The \_\_\_\_\_\_\_\_\_\_ is a layer of software between the applications and the computer hardware

that supports applications and utilities.

2)   A process is in the \_\_\_\_\_\_\_\_\_ state when it is in secondary memory and awaiting an event.

3)  Two essential elements of a process are \_\_\_\_\_\_\_\_\_\_ and a set of data associated with that code.

1. The \_\_\_\_\_\_\_\_\_ tables provide information about the existence of files, their location on secondary

memory, their current status, and other attributes.

1. A significant point about the \_\_\_\_\_\_\_\_\_\_ is that it contains sufficient information so that it is possible

to interrupt a running process and later resume execution as if the interruption had not occurred.

1. General–purpose registers are \_\_\_\_\_\_\_\_\_ dependent.
2. When the OS creates a process at the explicit request of another process, the action is

referred to as \_\_\_\_\_\_\_\_\_\_ .

1. The process is said to be operating in a \_\_\_\_\_\_\_\_\_ fashion if each process in the queue is given

a certain amount of time, in turn, to execute and then returned to the queue, unless blocked.

9)  A process in the \_\_\_\_\_\_\_\_\_ state is in main memory and available for execution.

10)  \_\_\_\_\_\_\_\_\_ tables are used to keep track of both main (real) and secondary (virtual) memory.

11)  The process control block information can be grouped into three general categories: process

identification, \_\_\_\_\_\_\_\_\_\_ and process control information.

12)  A \_\_\_\_\_\_\_\_\_\_ is the maximum amount of time that a process can execute before being interrupted.

13)  When a process is not running, the processor status information is stored in the \_\_\_\_\_\_\_\_\_ context area.

14)  The principal function of the OS is to create, manage, and \_\_\_\_\_\_\_\_ processes.

15)  An IDS comprises three logical components: sensors, \_\_\_\_\_\_\_\_\_\_, and user interface.