Indian Institute of Information Technology Sri City, Chittoor
Scheduled Quiz I – August 2024
Operating Systems
Maximum Marks: 20 **Time Duration: 20 mins** **Date: 30/08/2024**

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1. The starvation or indefinite blocking of processes is one of the major limitation usually seen in which of the following CPU Scheduling Algorithms
    a. Round Robin
    b. Round Robin and FCFS
    c. Priority Based
    d. SJF and Round Robin
2. Which module gives control of the CPU to the process selected by the short-term scheduler?
    a. Interrupter
    b. Dispatcher
    c. System call
    d. None of the above
3. With round robin scheduling algorithm in a time shared system _____
    a. using very small time slices converts it into Shortest Job First algorithm
    b. using extremely small time slices increases performance
    c. using very small time slices converts it into First come First served scheduling algorithm
    d. using very large time slices converts it into First come First served scheduling algorithm
4. A process is selected from the _____ queue by the _____ scheduler, to be executed.
    a. blocked, short term
    b. wait, long term
    c. ready, short term
    d. ready, long term
5. There are 10 different processes running on a workstation. Idle processes are waiting for an input event in the input queue. Busy processes are scheduled with the Round-Robin time sharing method. Which out of the following quantum times is the best value for small response times, if the processes have a short runtime, e.g. less than 10ms?
    a. tQ = 15ms
    b. tQ = 40ms
    c. tQ = 45ms
    d. tQ = 50ms
6. If a computer system completes **n** processes in **t** seconds then its throughput is _____ process per second during that interval.
    a. t / n
    b. n t
    c. n / t
    d. n + t
7. Consider a Computer C1, with N CPUs and K processes. Where N<K, and at least 1 CPU is not idle. Which of the following statements are false
    i. The maximum number of processes in ready state is K-1
    ii. The maximum number of processes in blocked state is K
    iii. The maximum number of processes in running state is K
    iv. The maximum number of processes in running state is N

a. i and ii
b. ii and iii
c. iii and iv
d. i, ii, iii

8. Which of the following is false about system calls?
   a. Each system call has an associated number.
   b. A user process calling a system call must know its implementation.
   c. System calls are executed in kernel mode.
   d. System calls are typically written in a high-level language like C or C++
9. Which of the following is false about system call parameters?
   a. Parameters can be directly loaded into registers.
   b. Parameters can be stored in a block or table in memory and the address of the block can be passed as a parameter in a register.
   c. Parameters can only be passed as values but not references.
   d. Parameters can be pushed onto the stack and the OS can read them by popping the stack.
10. Find the number of processes created if the following C program is executed on a Unix/Linux System.

```
#include < unistd.h >
  int main() {
    int i;
    for (i = 0; i < 10; i++)
      if (i % 2 == 0) fork();
    return 0;
  }
```

   a. 32
   b. 63
   c. 31
   d. 64
11. System calls are usually invoked by using
   a. Software interrupt
   b. Polling
   c. Indirect jump
   d. Privileged instruction
12. Which system call can be used by a parent process to determine the termination of the child process?
   a. Exit
   b. Fork
   c. Wait
   d. Get
13. What is the correct sequence of starting an OS
   a. BIOS initialization → Boot loader → MBR → Kernel initialization
   b. BIOS initialization → MBR → Boot loader → Kernel initialization
   c. BIOS initialization → Kernel initialization → MBR → Boot loader
   d. BIOS initialization → MBR → Kernel initialization → Boot loader
14. Which of the following correct sequence of transition from user mode → kernel mode → user mode

i. User process calling system call ii. Executing system call iii. Return from system call iv. setting mode bit =0 v. Setting mode bit = 1

a. i → ii → iii → v → vi
b. i → ii → v → iii → iv
c. i → v → ii → iv → iii
d. i → iv → ii → v → iii

15. Many to One model is at an advantage in which of the following conditions?
    a. When the program needs to be multi-threaded
    b. When there is a single processor
    c. When the program does not need multithreading
    d. None
16. Which type of operating system is designed to manage tasks with strict timing requirements, ensuring timely response to events?
    a. Multitasking O.S.
    b. Batch processing O.S.
    c. Real-time O.S.
    d. Distributed O.S.
17. In a time-sharing system, what is the primary goal?
    a. To maximize CPU utilization by allowing multiple users to share the system
    b. To ensure real-time processing of tasks
    c. To provide a high degree of security
    d. To manage hardware resources efficiently
18. In a distributed operating system, what is managed across multiple machines?
    a. Memory
    b. Processes
    c. File systems
    d. All of the above
19. What does the term "interrupt" refer to in operating systems?
    a. A method of scheduling processes
    b. A mechanism by which the CPU is notified of an event that needs immediate attention
    c. A process of allocating disk space
    d. A technique for managing user permissions
20. What is the role of device drivers in an operating system?
    a. To manage system memory
    b. To provide an interface for the operating system to communicate with hardware devices
    c. To handle process scheduling
    d. To manage user interface elements