

**CS3502 Operating Systems**

**Department of Computer Science**

**Kennesaw State University**

**Quiz # 1**

**Fall 2021**

**September 27, 2021**

**There are 60 Questions. Answer all the questions in the space provided**

**Time: 50 Minute**

**KSU NetID:**

**Student Name:**

**Signature:**

**Multiple Choice Questions. Choose only ONE as the correct answer.**

1. What is the first stage in a typical four-stage CPU pipeline?

- A. Decode
- B. Execute
- C. Fetch**
- D. Write

2. Which of the following terms are measures of CPU speed?

- A. Megahertz and gigahertz**
- B. Megabytes and gigabytes
- C. Megahertz and gigabytes
- D. Frontside bus, backside bus

3. Which of the following is not an example of Operating System?

- A. Windows 98
- B. BSD Unix
- C. Microsoft Office XP**
- D. Red Hat Linux

4. Which of the following commands is given to reboot the computer in Windows machine?

- A. Ctrl + Alt + Del
- B. Ctrl + Alt + Tab

- C. Ctrl + Shift + Del  
D. Ctrl + Alt + shift
5. Select the odd one out -
- A. Interpreter  
B. Operating System  
C. Compiler  
D. Assembler
6. A temporary storage area, attached to the CPU, for I/O operations, is a
- A. Channel  
B. Buffer  
C. Register  
D. Core
7. Terminal is a
- A. device used to give supply to a computer  
B. Point at which data may leave or enter the computer  
C. point where wires are interconnected  
D. an input/output device
8. \_\_\_\_\_ command is used to remove the directory in **Linux/UNIX**?
- A. rdir  
B. remove  
C. rd  
D. rmdir  
E. None of the above
9. \_\_\_\_\_ command is used to remove files in **Linux/UNIX**?
- A. dm  
B. rm  
C. delete  
D. erase  
E. None of the above
10. \_\_\_\_\_ is the core of the operating system

- A. Shell
  - B. Kernel**
  - C. Command
  - D. Script
11. Which among the following is NOT a text editor in Linux
- A. emacs
  - B. vi
  - C. vim
  - D. Notepad**
12. You attempt to remove a directory, but Linux won't allow you, what is the most likely problem?
- A. The directory name contains illegal characters
  - B. You are not logged in as root
  - C. The hard disk is full
  - D. The directory is not empty**
  - E. None are likely problems
13. What is the default administrator username in Linux/UNIX?
- a. administrator
  - b. admin
  - c. superuser
  - d. root**
  - e. head
14. What does the command "ps" do?
- a. Prints the directory
  - b. Shows what processes are running**
  - c. Print status of LPT1
  - d. Produces system statistics
  - e. None of the above
15. You are working in Linux when a program hits a flaw and stops running. Which command can be used to end the process?
- a. kill**

- b. stop
  - c. end
  - d. wait
  - e. CTL-ALT-DEL
16. A user is logged into the Linux workstation, what is the best way to login to root from a shell prompt?
- a. login root
  - b. chuser root
  - c. su
  - d. root
17. A host can be identified by \_\_\_\_\_ while a program running on the host can be identified by \_\_\_\_\_.
- a. An IP address; a port number
  - b. A port number; an IP address
  - c. An IP address; a host address
  - d. An IP address; a well-known port
18. When a process creates a new process using the fork() operation, which of the following state is shared between the parent process and the child process?
- a. Stack
  - b. Heap
  - c. Shared memory segments
  - d. None of the above.
19. Which of the following is the most appropriate answer to print new line in C++?
- a. std::endl
  - b. \n
  - c. Both a and b
  - d. None
20. Which of the following does not cause a syntax error to be reported by the C++ compiler?
- a. Mismatched {}.
  - b. Missing \*/ in a comment.

c. Missing ; at the end of a statement.

d. Extra blank lines.

21. A function prototype does not have to:

a. Include parameter names.

b. Terminate with a semicolon.

c. Agree with the function definition.

d. Match with all calls to the function.

22. Consider the following C++ program.

```
#include <iostream>
using namespace std;
int main()
{
    cout « "Hello World "
    return 0;
}
```

In the cout statement, the missing semicolon in the code above will be caught by the \_\_\_\_\_.

a. compiler c. assembler

b. editor d. control unit

23. In C++, the scope resolution operator is \_\_\_\_\_.

a. | c. :

b. . d. ::

24. CPU switching from one process to another requires saving the state of the current process and loading the latest state of the next process, is known as \_\_\_\_\_

a. Context Switch

b. packet switch

c. process switch

d. processor switch

25. If process  $p_i$  is executing in its critical-section, then no other processes can be executing in their critical-sections. Technique is called \_\_\_\_\_

a. Mutual Exclusion

- b. Bounded Waiting
- c. Progress
- d. both a and b

26. The bare minimum number of cores and CPUs that are required to run a multithreaded program is:

- A. Two CPUs each with 1 core
- B. One CPU with 1 core
- C. Two CPUs with 2 cores

D. One CPU with 2 cores

27. Calling the *join* method on a running thread causes

- A. An exception to be generated
- B. The thread is terminated normally without any issues
- C. The Join call is ignored and the thread becomes detached

D. The join call blocks (waiting for the thread to finish)

28. If a thread has already finished running, then calling the Join method on the thread causes:

- A. An exception to be generated
- B. The thread is terminated normally without any issues
- C. The join call is ignored and the thread becomes detached
- D. The Join call blocks (waiting for the thread to finish)

29. Given a C++ source file named exam1.cpp, the executable generated by compiling it must be named:

- A. exam1 (same as source file without extension)
- B. exam (same as source file but numbers are invalid in executable names)
- C. ./exam1 (the dot slash is needed for executable names)

D. The executable can have any name

30. Which of the following command can be used to terminate a process that has id PID?

- a. Pressing Control C ( ^C)
- b. kill PID
- c. Both a & b

d. None of the above

**True/False Questions. Choose TRUE/FALSE beside the questions.**

**TRUE FALSE** 31. There is no difference between the command *cp* and *scp*

**TRUE FALSE** 32. C++ program begin executing from the first encountered function.

**TRUE FALSE** 33. C++ main function can NOT return value other than 0.

**TRUE FALSE** 34. From OS perspective, there is no difference between Heap and Stack memory.

**TRUE FALSE** 35. The one program running at all times on the computer is the **kernel**.

**TRUE FALSE** 36. Bootstrap program is loaded at power-up or reboot and typically stored in ROM or EPROM, generally known as firmware

**TRUE FALSE** 37. In DMA, Device controller transfers blocks of data from buffer storage directly to main memory without CPU intervention.

**TRUE FALSE** 38. Program is an *active entity*, process is an *passive entity*.

**TRUE FALSE** 39. **Debugging** is finding and fixing errors, or bugs.

**TRUE FALSE** 40. System Booting is two-step process where **boot block** at fixed location loaded by ROM code, which loads bootstrap loader from disk.

**TRUE FALSE** 41. **Dual-mode** (i.e., User mode and kernel mode) operation allows OS to protect itself and other system components.

**TRUE FALSE** 42. Command line parameters. Consider the following definition of a main()

```
int main(int argc, char*argv[]){  
    return 0;  
}
```

The *argc* need to be passed from command line.

**TRUE FALSE** 43. C++ programs were always portable from one compiler to another.

**TRUE FALSE** 44. For file input/output in a program, the program must include the header file *iostream*.

**TRUE FALSE** 45. Most operating systems allow a process to have multiple threads.

**TRUE FALSE** 46. Amdahl's Law addresses the disproportionate effect of the serial portion of a program.

**TRUE FALSE** 47. PThreads is typically only implemented on UNIX-like systems.

**TRUE FALSE** 48. PThreads is only a specification, not an implementation.

**TRUE FALSE** 49. The semantics of the `fork()` system call can vary on multithreaded systems.

**TRUE FALSE** 50. A non-preemptive kernel is essentially free from race conditions.

**TRUE FALSE** 51. The view most users see of the operating system is defined by application and system programs rather than system calls.

**TRUE FALSE** 52. Performance tuning is a type of debugging.

**TRUE FALSE** 53. Most operating systems allow a process to have multiple threads.

**TRUE FALSE** 54. Concurrency is only possible with parallelism.

**TRUE FALSE** 55. A device which works with one Linux distribution may not necessary work with others.

**TRUE FALSE** 56. Pipes can be used to send the output of one command to another.

**TRUE FALSE** 57. Managing files is one of the most visible aspects of an operating system.

**TRUE FALSE** 58. A process is a program in execution.

**TRUE FALSE** 59. There is no difference between an *interrupt* and a *trap*.

**TRUE FALSE** 60. Linux command to make a subdirectory is *mkdir*