

Name:

CSE

When answering the questions below, make sure to show all of your work. Pay attention to the point values on each question. State your assumptions, and explain your answers thoroughly. Remember that an explanation is expected with every answer except the multiple choice and true/false questions when the answer is true. Use blank paper if you do not have enough room.

Time: 09:00 to 12:00 | Total Marks: 75

1. What does the ``wait()'` system call return? [1]
 - a) PID of terminated child
 - b) 0
 - c) -1
 - d) Exit status
2. Which system call provides information about a file? [1]
 - a) `stat()`
 - b) `info()`
 - c) `ls()`
 - d) `view()`
3. Which system call renames a file? [1]
 - a) `rename()`
 - b) `move()`
 - c) `unlink()`
 - d) `link()`
4. Which file descriptor represents standard input? [1]
 - a) 0
 - b) 1
 - c) 2
 - d) 3
5. List correct command in linux [1]
 - a) `ls`
 - b) `mkdir`
 - c) `cd`
 - d) all-----
6. What is the role of the ``exit()'` system call? [1]
 - a) Terminates the current process
 - b) Starts a new process
 - c) Closes all file descriptors
 - d) Restarts the OS
7. What is the file descriptor for standard output? [1]

- a) 1
- b) 0
- c) 2
- d) -1

8. Which call changes the ownership of a file? [1]

- a) chown()
- b) chmod()
- c) access()
- d) stat()

9. What is a zombie process? [1]

- a) A terminated child not yet waited for
- b) A sleeping process
- c) A paused process
- d) A killed process

10. What is the default action of most signals like SIGTERM? [1]

- a) Terminate the process
- b) Ignore
- c) Pause the process
- d) Restart the process

11. Which system call checks the accessibility of a file? [1]

- a) access()
- b) read()
- c) open()
- d) stat()

12. Which family of functions executes a program from within a process? [1]

- a) exec family
- b) fork family
- c) wait family
- d) system family

13. What is the parent process ID (PPID) retrieved by? [1]

- a) getppid()
- b) getpid()
- c) fork()
- d) wait()

14. Which call registers a handler for a signal? [1]

- a) signal()
- b) kill()
- c) exec()
- d) wait()

15. What is the default action of the SIGKILL signal? [1]

- a) Terminates the process

- b) Ignores the signal
- c) Suspends the process
- d) Restarts process

16. What are the functions of system programs?

[5]

17. What is a loader in system programming?

[5]

18. Define system software with examples?

[5]

19. What does the write() system call do?

[5]

20. What is the use of 'lseek()' system call?

[5]

21. Define context switching.

[5]

22. Explain how signals are used for inter-process communication (IPC).

[7]

23. How can we use wait() and waitpid() to manage child processes?

[7]

24. How does the OS prevent deadlocks during IPC?

[7]

25. Describe shared memory and how synchronization is ensured between processes.

[9]

