

Name:

CSE

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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 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
2. What is the maximum number of file descriptors a process can have? [1]
  - a) System-defined limit
  - b) 10
  - c) Unlimited
  - d) 256
3. 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
4. Which call sends a signal to a process? [1]
  - a) `kill()`
  - b) `signal()`
  - c) `raise()`
  - d) `exec()`
5. Which command is used to list all running processes in Linux? [1]
  - a) `ps`
  - b) `ls`
  - c) `top`
  - d) `jobs`
6. 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
7. Which system call is used to move the file offset? [1]

- a) lseek()
- b) seek()
- c) fseek()
- d) offset()

8. Which of the following system calls is used to create a new process in Linux? [1]

- a) fork()
- b) exec()
- c) clone()
- d) None of Above

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

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

10. Which system call replaces the current process image with a new process image? [1]

- a) exec()
- b) fork()
- c) wait()
- d) exit()

11. What is returned by `read()` on end-of-file? [1]

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

12. What does `O\_TRUNC` flag do in `open()`? [1]

- a) Truncates file to 0 length
- b) Appends to file
- c) Prevents overwrite
- d) Renames file

13. What is the return value of `exec()` on success? [1]

- a) Does not return
- b) 0
- c) 1
- d) -1

14. Which of the following is not a system call? [1]

- a) printf()
- b) fork()
- c) exec()
- d) wait()

15. Which header is needed for using fork? [1]

- a) unistd.h

b) `stdio.h`

c) `stdlib.h`

d) `string.h`

16. What is mean by kernel?

[5]

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17. Define system software with examples?

[5]

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18. Explain the term linking.

[5]

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19. List some commands

[5]

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20. Name a few examples of system programs.

[5]

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21. What is manual memory management, and where is it commonly used?

[5]

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22. 444 Question 300

[7]

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23. Describe the potential consequences of minor inefficiencies in system-critical software.

[7]

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24. Explain why even minor inefficiencies can have a significant impact on performance in system-critical software, providing specific examples. [7]

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25. Explain reentrant code and its importance in interrupt service routines. [9]

