

27. a.i. Develop an example "hello word" program for Linux using C. also compile, link, run the program. 5 4 2 5
- ii. Analyze the functions performed by cloning process. 5 4 2 5
- (OR)
- b. Explain debugging with gdb debugger with an example. 10 4 2 5
28. a. Describe porting and configuring the kernel for target system. 10 3 3 4
- (OR)
- b. Illustrate the booting process and bootloaders setup. 10 3 3 4
29. a. Illustrate flash memory and system memory operation in Linux. 10 3 4 3
- (OR)
- b. Analyze the internals and architecture of device driver. 10 3 4 3
30. a. How do you identify memory leaks using mtrace and valgrind tools? Explain with suitable examples. 10 4 5 5
- (OR)
- b. Illustrate FT trace utility and its use in debugging. 10 4 5 5

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Reg. No.

**B.Tech. DEGREE EXAMINATION, NOVEMBER 2022**  
Sixth and Seventh Semester

18ECE316T – EMBEDDED LINUX

(For the candidates admitted from the academic year 2018-2019 to 2019-2020)

**Note:**

- (i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40<sup>th</sup> minute.
- (ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours

Max. Marks: 75

**PART – A (25 × 1 = 25 Marks)**

Answer ALL Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. _____ represents one level above the current working directory.<br>(A) ~ (B) #<br>(C) .. (D) !  | 1     | 1  | 1  | 5  |
| 2. To switch directories, _____ command is used.<br>(A) cd (B) rm<br>(C) mv (D) sd   | 1     | 1  | 1  | 5  |
| 3. _____ command is used to delete files.<br>(A) mv (B) rm<br>(C) touch (D) more   | 1     | 1  | 1  | 5  |
| 4. [student @ localhost ~]\$ WC-display.sh what is the output of above command?<br>(A) Display number of bytes in display.sh file (B) Display number of characters in display.sh file<br>(C) Display number of lines in display.sh file (D) Display number of words in display.sh file | 1     | 2  | 1  | 5  |
| 5. The following does not holds good for Vi editor.<br>(A) Vi requires no GUI (B) Vi is a very stable standard<br>(C) Vi always there in every linux distribution (D) Vi requires GUI  | 1     | 2  | 1  | 5  |
| 6. _____ tool chain runs on a different type of system than the target, allowing the development to be done on a fast desktop PC and then loaded on to the embedded target for testing.<br>(A) Native (B) Cross<br>(C) Self (D) Different  | 1     | 1  | 2  | 5  |
| 7. To make the file executable for all user, use _____ command.<br>(A) chmod (B) dhmod<br>(C) phmod (D) rhnmod   | 1     | 1  | 2  | 5  |

8. In binutils setup, \_\_\_\_\_ utility copied and translates object files. 1 2 2 5  
 (A) Objcopy (B) Objdump  
 (C) Ranlib (D) Readelf
9. The command that downloads the latest version history of files from the remote repository to local repository but does not perform any merging is 1 2 2 5  
 (A) git pull (B) git base  
 (C) git rebase (D) git fetch
10. To commit the file to the repository, use \_\_\_\_\_ command. 1 2 2 5  
 (A) Git push (B) Git go  
 (C) Git commit (D) Git pull
11. In linux kernel configuration, \_\_\_\_\_ method provides a command-line interface where you are asked about each option one by one. 1 2 3 4  
 (A) Make set (B) Make reset  
 (C) Make config (D) Make old config
12. System.map contains \_\_\_\_\_ 1 2 3 4  
 (A) The uncompressed image (B) The compressed image  
 (C) The kernel symbols (D) The kernel configuration file
13. The root file system top-level directory bin contains \_\_\_\_\_ 1 2 3 4  
 (A) System configuration files (B) Essential user command binaries  
 (C) Static files used by the (D) Devices and other special files bootloader
14. Between the two levels of abstraction, the kernel sometimes needs to understand and interact with structured data coming from or going to certain devices, through 1 1 3 4  
 (A) Interpretation components (B) Mediator components  
 (C) Hardware components (D) Emulator components
15. If the system has stringent time requirements, then it is a 1 1 3 4  
 (A) Hard real-time system (B) Soft real-time system  
 (C) Mild real-time system (D) Very mild real-time system
16. In system Vinit program, the runlevel for the multi-user with no network configuration is \_\_\_\_\_ 1 2 4 3  
 (A) 0 (B) 1  
 (C) 2 (D) 3
17. The memory that consists of one or more NAND flash chips packaged with a controller which handles the complexities of flash memory and presents a hardware interface similar to that of a harddisk is \_\_\_\_\_ 1 2 4 3  
 (A) AND flash (B) OR flash  
 (C) NOR flash (D) Managed flash

18. The utility that simply displays a formatted list of the modules that are inserted into the kernel. 1 2 4 3  
 (A) insmod (B) lsmod  
 (C) depmod (D) rmmod
19. The command that tests and diagnostics for NAND flash is \_\_\_\_\_ 1 1 4 3  
 (A) nand dump (B) nand test  
 (C) nand write (D) nand diags
20. Serial ports and keyboards are example for \_\_\_\_\_ 1 1 4 3  
 (A) Character devices (B) Block devices  
 (C) Parallel devices (D) Blocked devices
21. In profiling with perf, \_\_\_\_\_ is a graphical interface that otherwise acts in the same way as -tui. 1 2 5 5  
 (A) -stdio (B) -tui  
 (C) -gtk (D) -gui
22. The utility that is used to measure scheduling latencies 1 2 5 5  
 (A) Etrace (B) Ftrace  
 (C) Gtrace (D) Htrace
23. Valgrind contains \_\_\_\_\_ diagnostic tool that calculates the processor cache hit rate. 1 2 5 5  
 (A) Cache grind (B) Call grind  
 (C) Helgrind (D) DRD
24. Invalid memory accesses are trapped and applications alerted by \_\_\_\_\_ 1 1 5 5  
 (A) SIGPEGV (B) SIGQEGV  
 (C) SIGREGV (D) SIGSEGV
25. Kernel space memory is allocated using \_\_\_\_\_ function. 1 1 5 5  
 (A) K malloc (B) S malloc  
 (C) P malloc (D) Q malloc

**PART – B (5 × 10 = 50 Marks)**  
 Answer ALL Questions

- |   | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 26. a.i. Analyse “ls-l” command without piping and with piping process. | 5     | 3  | 1  | 5  |
| ii. Write the techniques to assume the identify of the root user.       | 5     | 3  | 1  | 5  |
| <b>(OR)</b>   |       |    |    |    |
| b.i. Elaborate wild card characters in Linux with example.              | 5     | 3  | 1  | 5  |
| ii. Explain Linux file system architecture with an example.             | 5     | 3  | 1  | 5  |