



R20 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 3P3FB

B.Tech III Semester Regular Examinations, February 2022
LINUX PROGRAMMING
(INFORMATION TECHNOLOGY)

Maximum Marks: 70

Date: 24.02.2022 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

Answer All the following questions.

(10X2M=20Marks)

- 1 List some text processing Linux utilities.
- 2 Write a short note on Disk Utility.
- 3 How to identify your home directory in shell command line?
- 4 Write a short note on "lseek".
- 5 What are the uses of fork() function?
- 6 What is a zombie process?
- 7 Define IPC.
- 8 What is a Message queue?
- 9 Compare and contrast stream sockets and raw sockets
- 10 What is 'fcntl' function in socket programming?

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 (a) Explain briefly about text processing and process utilities.
(b) Differentiate between shell variables and environment variables and user defined variables 5+5

OR

- 12 (a) What is bash in shell programming?
(b) Write a shell script to count the number of lines in a text file without using wc command 5+5

- 13 (a) Explain about symlink () function with example program.
(b) What does directory file in UNIX contain? 5+5

OR

- 14 (a) Define a system call? Explain how the system call differs from that of the library functions
(b) Explain the kernel support for file system. 5+5

- 15 (a) Define Signals. What do you mean by Unreliable Signals? Explain.
(b) Compare and contrast between fork() and vfork(). 5+5

OR

- 16 (a) What is the need of `exec()` system call? Write a C program to illustrate `exec()` function 5+5
(b) How Unix kernel provides support for 'signals' and write about `kill`, `raise`, `alarm`, `pause`, `abort` and `sleep` functions used in Unix signals
- 17 (a) Compare the IPC functionality provided by message queues and FIFO's. What are the advantages and drawbacks of each? Explain briefly. 5+5
(b) What are pipes? Explain their limitations. Explain how pipes are created and used in IPC with an example
- OR
- 18 List some APIs used for message queues and construct a sample code for Client-Server application using messages. 10
- 19 (a) Write a C Socket Program for Linux with a Server and Client Example Code.
(b) Explain briefly about the following socket APIs with clear syntax: 6+4
i) `bind()` ii) `listen()`
- OR
- 20 (a) Describe about Unix API for shared memory with examples. 5+5
(b) What are Berkeley sockets and write a note on 'socket options'?