R20 Regulation *Subject code:3P7EA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VII Semester Supplementary Examinations, October 2026

LINUX PROGRAMMING

(CSE)

Maximum Marks: 70 Date: 26.10.2026 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

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	How to identify the version of the shell you are using on LINUX system?	2M	1	L1
2	Define Shell and list out few shell names	2M	1	L1
3	Define directory. Write the command to see the inode number of a file at command line.	2M	2	L1
4	Write about the program arguments	2M	2	L1
5	Give the difference between wait and waitpid.	2M	3	L1
6	Differentiate named and unnamed pipes	2M	3	L1
7	What are reliable signals?	2M	4	L1
8	What is IPC?	2M	4	L1
9	Define Shared Memory	2M	5	L1
10	Define Socket?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Analyze the UNIX/LINUX Operating System and Its Key Features. b) Examine the Architecture of UNIX-like Systems.	5M 5M	1	L2
	OR			
12	a) Analyze How the UNIX Operating System Enhances Security Compared to Other Operating Systems. b) Examine the Role of Meta characters in Shell Scripting with an Example Script.	5M 5M	1	L3
13	Analyze the file and directory maintenance system calls. Categorize their syntax and evaluate relevant examples to illustrate their usage effectively.	10M	2	L3
	OR			
14	a) Examine the role of a shell user. Distinguish and categorize shell variables, environment variables, and user-defined variables. Compare their functions and examine their characteristics. b) Construct a shell script to count the number of lines in a text file without using the wc command. Dissect the script and examine its function to evaluate its effectiveness.	5M 5M	2	L2

15	Analyze the concept of processes in Linux. Discuss the structure of a process and how different attributes (like PID, memory, and file descriptors) contribute to process management and resource allocation.	10M	3	L2
	OR			
16	Analyze the pipe system call in Linux. Explain its role in creating unidirectional communication channels and discuss its significance in the context of parent-child process relationships.	10M	3	L3
17	Apply your understanding of semaphores to demonstrate process synchronization in Linux. Write a program that uses semaphores to manage access to a shared resource.	10M	4	L3
	OR			
18	Explain the process of setting up message queues in Linux and apply this technique to demonstrate how message passing can synchronize multiple processes.	10M	4	L2
19	Apply your knowledge of UDP socket programming to develop a detailed explanation on how to construct client and server programs Select appropriate examples to illustrate your answer	10M	5	L2
	OR			
20	Identify the concept of data grams in UDP socket programming. Explain how to send and receive data grams between a client and server.	10M	5	L2