R20 Regulation *Subject code:3P7EA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, May 2026

LINUX PROGRAMMING

(CSE)

Maximum Marks: 70 Date: 05.05.2026 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	What are the responsibilities of a shell?	2M	1	L1
2	What is the difference between Linux file system and Windows file system?	2M	1	L1
3	Define System call.	2M	2	L1
4	What are the uses of fork function?	2M	2	L1
5	What are reliable signals?	2M	3	L1
6	Differentiate threads and processes.	2M	3	L1
7	What is IPC?	2M	4	L1
8	Write about fopen.	2M	4	L1
9	Write about 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) Explain 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) Write the Role of Meta characters in Shell Scripting with an Example Script.	5M 5M	1	L2
13	Analyze the role of file and directory maintenance system calls in UNIX/Linux. How do they manage files and directories? Provide syntax and examples for key system calls.	10M	2	L2
	OR			
14	(a) Distinguish shell variables, environment variables, and user-defined variables in a shell environment. (b) Dissect a shell script that counts the number of lines in a text file without using the wc command.	5M 5M	2	L2

15	Analyze process creation, process termination, signal function, and reliable signals in operating systems, providing examples for each.	10M	3	L2
	OR			
16	Analyze and write a C program that demonstrates the redirection of standard output to a file (e.g., ls > f1). Explain how the redirection is implemented in the program.	10M	3	L2
17	Construct an explanation of the kernel data structure for message queues with a neat diagram. Utilize the associated APIs and construct an example program to demonstrate their functionality.	10M	4	L2
	OR			
18	Compare and contrast semaphore and shared memory IPC mechanisms. Identify their similarities and differences and utilize examples to illustrate their functions in inter-process communication.	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	(a) Identify and define the three states of TCP connection establishment and termination. (b) Construct a program to illustrate the use of bind(), listen(), and accept() system calls.	5M 5M	5	L2