R20 Regulation *Subject code:3P7EA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, November 2025

LINUX PROGRAMMING

(CSE)

Maximum Marks: 70 Date: 24.11.2025 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	Define Operating system.	2M	1	L1
2	What is Shell and explain how Shell Works	2M	1	L1
3	How shell script is executed?	2M	2	L1
4	What is environ variable?	2M	2	L1
5	Write the uses of fork()?	2M	3	L1
6	Define zombie process.	2M	3	L1
7	Write the function to create a semaphore and write its syntax.	2M	4	L1
8	What is a message queue	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	Analyze the various control structures used in Linux shell programming, detailing their syntax and Explain with a simple shell program?	10M	1	L2
	OR			
12	Examine the advantages of the UNIX/Linux file system. Also, identify and discuss the different commands used in system calls for I/O operations.	10M	1	L2
13	Analyze the file and directory maintenance system calls. Categorize their syntax and evaluate relevant examples to illustrate their usage effectively.	10M	2	L2
	OR			
14	Analyze the purpose and functionality of the following Linux system calls: a)chmod b)chown c) mkdir d)rmdir e)link	10M	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	L2
17	Utilize IPC status commands (such as ipcs and ipcrm) to monitor and manage semaphores, shared memory, and message queues. Explain how these commands help in diagnosing and managing IPC resources.	10M	4	L2
	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	Apply your understanding of data grams in socket programming using UDP by writing a program that demonstrates sending and receiving data grams between a client and a server	10M	5	L2