



R20 Regulation

Subject code: 3P3FD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, December 2025

OPERATING SYSTEMS (IT)

Maximum Marks: 70

Date: 27.12.2025

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	What is an operating system?	2M	1	L1
2	Define system call.	2M	1	L1
3	What is a process?	2M	2	L1
4	What is Independent process?	2M	2	L1
5	What do you mean by contiguous memory allocation?	2M	3	L1
6	What is virtual memory?	2M	3	L1
7	What are the different accessing methods of a file?	2M	4	L1
8	What is directory?	2M	4	L1
9	What is deadlock? What is starvation? How do they differ from each other?	2M	5	L1
10	Write about goals of protection?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	What are the major activities of an operating system with regard to file management? Explain them briefly with their supporting system call.	10M	1	L2
OR				
12	a) Describe operating system structure in detail. b) Discuss about system programs.	5M 5M	1	L2
13	a) Explain about process states and process control block. b) Discuss about Multiple processor scheduling.	5M 5M	2	L2
OR				
14	Consider 3 processes P1, P2 and P3, which require 5, 7 and 4 time units and arrive at time 0, 1 and 3. Draw the Gant chart, process completion sequence and average waiting time for. (i) Round robin scheduling with CPU quantum of 2 time units. (ii) FCFS.	10M	2	L2

15	Give the detailed description of hardware implementation of a page table with translation Look-Aside Buffer.	10M	3	L2
	OR			
16	a) Differentiate Internal fragmentation and External fragmentation. b) What is Belady's anomaly? Explain with one example.	5M 5M	3	L2
17	Explain the following with relevant diagrams: a) Single level directory structure. b) Tree structured directory structure.	5M 5M	4	L2
	OR			
18	a) Explain about file attributes and operations in file management. b) Explain about sequential and direct access methods.	5M 5M	4	L2
19	a) Explain about deadlock characterization b) What are the different methods for handling deadlocks?	5M 5M	5	L2
	OR			
20	What is access matrix? What are various methods to implement it?	10M	5	L2