R18 Regulation *Subject code:* 2P5EA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, June 2022
OPERATING SYSTEMS
(COMPUTER SCIENCE & ENGINEERING)

Maximum Marks: 70 Date:02.07.2022 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

All the following questions carry equal marks **(10x2M=20 Marks)**

1 What are the goals of operating system?
2 Define Real time operating systems.
3 What do you mean by turnaround Time?
4 What is preemptive Scheduling? How is it different from non-preemptive scheduling?
5 What are the Methods for Handling Deadlocks
6 List the steps needed for page replacement.
7 Compare LRU and Optimal Replacement Algorithms.
8 Describe about File Allocation Table.
9 What file attributes are updated during file creation?
10 Write down the principles of protection.

Part-B

Answer All the following questions. **(10M X 5=50Marks)**

11 a) What is System call? Discuss major System calls of Operating Systems.
b) "Operating system is resource manager"-Justify this statement with suitable functionality of OS.

OR

12 a) Explain the operating system structure and its functions.
b) Discuss the services provided by the operating system for efficient system operation.

13 a) Demonstrate Round Robin CPU scheduling algorithms with suitable example.
b) What are the components of process control block? Explain.

OR

14 a) What is the critical section? What are the minimum requirements that should be satisfied by a solution to critical section problem?
b) Discuss in detail about the Dining –Philosophers solution using monitors.

15 a) Explain Banker's deadlock-avoidance algorithm with an illustration.
b) Explain in detail about deadlock detection techniques.

OR

16 a) What is a Virtual Memory? Discuss the benefits of virtual memory technique.

b) Explain in detail about segmentation on with paging technique.

17 a) Consider the reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for a memory with three frames. Trace FIFO, and LRU page replacement algorithms.

b) Discuss the procedure for handling the page fault in demand paging.

OR

18 a) What is Thrashing? What is the cause of Thrashing? How does the system detect Thrashing? What can the system do to eliminate this problem?

b)Explain in detail the system call sequence to copy the contents of one file to another file.

19 a) Discuss the different file allocation methods with suitable example.

b) what is access matrix? Implement various methods of access matrix.

OR

20 a) Explain principles and goals of protection.

b) Explain memory management techniques on windows vista.