



R18 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 2P5FA

B.Tech V Semester Regular/Supplementary Examinations, December 2021
OPERATING SYSTEMS
(Information Technology)

Maximum Marks: 70

Date: 30.12.2021 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 Define operating system.
- 2 Compare the advantages of multitasking systems over multiprogrammed systems.
- 3 Define synchronization.
- 4 Differentiate single threaded and multi-threaded processes.
- 5 What is the cause of Thrashing? How does the system detect thrashing? Once it detects thrashing, what can the system do to eliminate this problem?
- 6 Mention the significance of LDT and GDT in segmentation
- 7 Identify the two important function of virtual File System (VFS) layer in the concept of file system implementation
- 8 Define demand paging?
- 9 Show a brief overview on fork() and exec() process model
- 10 Define directory implementation.

Part-B

Answer All the following questions. (5X10M=50Marks)

- 11 Categorize the various types of system calls and explain with examples. (10M)
OR
- 12 Summarize the functionality of system boot with respect to an operating system. (10M)
- 13 a) Describe about semaphores and monitors. (5M)
b) Explain about multi thread models and issues in multithreading model. (5M)
OR
- 14 Consider the following set of processes, with the length of the CPU burst time in given ms:

Process	Burst Time	Arrival Time	Priority
P1	8	0	2
P2	4	1	1
P3	9	2	2
P4	5	3	1
P5	3	4	3

Draw Gantt charts illustrating the execution of these processes using FCFS, SJF, Priority and RR(Quantum=2ms) scheduling. Also calculate average waiting time and average turnaround time for each scheduling algorithms. (10M)

- 15 List the structure of the page table. Demonstrate how hashed page table handles address space larger than 32 bits with step by step procedure and neat diagram. (10M)
- OR
- 16 Explain Segmented paging memory management scheme neat diagram . Identify the advantages and disadvantages of the scheme. (10M)
- 17 a) Discuss about file concept, file operation and file type with suitable example. (5M)
b) Discuss about the various file access methods with example. (5M)
- OR
- 18 Consider a disk queue with requests for I/O to blocks on cylinders 98, 183, 37, 122, 14, 124, 65, 67. If the disk head is start at 53, then find out the total head movement with respect to FCFS, SSTF, SCAN, C-SCAN and LOOK scheduling. Analyse the total head movement and find the best scheduling algorithm. (10M)
- 19 Explain about file allocation methods. (10M)
- OR
- 20 a) Explain about access matrix. (5M)
b) Explain about principles of protection. (5M)