



R18 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

Subject code: 2P5EA

B.Tech V Semester Regular Examinations, February 2021

Operating Systems
(Computer Science and Engineering)

Maximum Marks: 70

Date: 17.02.2021 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 Explain the different operating system structures with neat sketch.
- 2 How does an interrupt differ from a trap?
- 3 Define critical region and monitors.
- 4 What are the classical problem of synchronization.
- 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 Define Lazy Swapper.
- 7 Define demand paging.
- 8 Examine in detail about Directory and disk structure.
- 9 Compare static and dynamic linking.
- 10 Explain Free-space management.

Part-B

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

- 11 Identify the difference between symmetric and asymmetric multiprocessing. Discuss the advantages and disadvantages of multiprocessor systems.(10M)
- OR**
- 12 Categorize the various types of system calls and explain with examples.(10M)
 - 13 Consider the following set of processes, with the length of the CPU burst time in given ms:

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

OR

- 14 a) Explain about interprocess communication. (5M)
 b) Describe about semaphores and monitors.(5M)

- 15 Analyze in detail the concept of Deadlock with relevant examples to explain its types.(10M)

OR

- 16 Discuss Paging and structure of page table in detail. (10M)

- 17 Explain any three page replacement algorithm with an example. Compare your algorithm with respect to page faults. (10M)

OR

- 18 A. Illustrate the concept of copy on write. (5M)
 B. Explain the concept of virtual memory on Windows. (5M)

- 19 Illustrate the components of Windows VISTA OS. Discuss the kernel synchronization process in detail.(10M)

OR

- 20 Elaborate on the implementation of Access Matrix, Access Control and Access Rights revocation. (10M)