R18 Regulation *Subject code: 2P5EA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Regular/Supplementary Examinations, December 2021

OPERATING SYSTEMS

(Computer Science and Engineering)

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 Outline the objectives of the operating system.
2 Write down the purpose of system programs?
3 Define i) IPC ii) CPU Scheduling
4 Define deadlock and state the methods of handling it.
5 Identify the difference between dynamic loading and linking
6 Consider a logical address space of 8 pages of 1024 words each, mapped on to a physical memory of 32 frames. How many bits are there in the logical address and in the physical address.
7 Enlist different types of directory structure
8 Outline the disadvantages of Contiguous memory allocation.
9 Define file mounting.
10 Write about access matrix?

Part-B

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

11 Explain the different operating system structures with neat sketch. (10M)

OR

12 Explain operating system services and functionalities. (10M)

13 a) Define critical region and monitors. (5M)
b) Explain about inter process communication. (5M)

OR

14 Explain in detail about the solutions on classical problem synchronization. (10M)

15 Explain the memory management scheme - paging with a neat diagram. (10M)

OR

16 Find the internal and external fragmentation for First fit, Best fit, Worst fit and tabulate the results when the process and their memory requirement is given as follows. (10M)

Process	Memory Requirement
P1	90K
P2	20K
P3	50K
P4	200K

The available free blocks of memory is as follows:

Memory Location	Memory block size
20567	50K
30045	100k
1002325	90K
1509876	200K
2006756	50K

17 Consider number of frames as 3 and apply a) FIFO b) LRU c) Optimal page replacement algorithms to find the number of page faults on the memory reference string. 7,0,1,2,3,4,1,5,6,7,0,2,3,3,2,0,1,4,3 (10M)

OR

18 Examine in detail about Directory and disk structure. Describe in detail about Directory allocation and free space management with neat examples. (10M)

19 Explain goals and principles of protection on file system. (10M)

OR

20 Explain file allocation methods with neat diagrams. (10M)