R22 Regulation *Subject code: 4E3HB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, July 2024

COMPUTER ORGANIZATION & OPERATING SYSTEMS

(CSE(DS))

Maximum Marks: 60 Date:27.07.2024 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 10 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	CO	Bloom Tx
All the following questions carry equal marks	(10X1M=10 Marks)		
1.a)	Define multiprocessors and multi-computers.	1	L1
b)	Explain the function of the Arithmetic Logic Unit in a computer system.	1	L1
c)	What is the role of control memory in microprogrammed control?	2	L1
d)	State two performance considerations when designing cache memories.	2	L1
e)	Name two examples of peripheral devices commonly used in computer systems.	3	L1
f)	Define Input-Output Processor (IOP) and mention its primary function.	3	L1
g)	State one common criterion used for CPU scheduling in operating systems.	4	L1
h)	List out the different system calls used in OS.	4	L1
i)	Define virtual memory and mention one advantage it provides to the operating system.	5	L1
j)	Define swaping.	5	L1
	Part-B		
Answer All the following questions.	(5X10M=50Marks)		Bloom Tx level
2	Explain about fixed point addition in detail with the help of neat diagram.[10]	1	L2
	OR		
3	Explain athematic micro-operations and logical micro-operations. [10]	1	L2
4	Compare and contrast the design of a Control Unit in Microprogrammed Control with Hard-Wired Control. Highlight the advantages and disadvantages of each approach. [10]	2	L2
	OR		
5	Evaluate the importance of RAID in the context of data integrity and availability. Illustrate with examples how RAID can enhance reliability in storage systems. [10]	2	L2
6	Define Priority Interrupt and its role in managing multiple devices seeking CPU attention. How does the priority interrupt mechanism enhance the efficiency of input-output operations? [10]	3	L2

	OR		
7	Provide an overview of Peripheral Components commonly used in computer systems. Discuss their roles and functionalities, emphasizing their importance in enhancing the user experience. [10]	3	L2
8	Explain about deadlock avoidance and deadlock detection in detail. [10]	4	L2
	OR		
9	Define CPU scheduling and its importance in operating systems. Discuss the criteria used for scheduling processes and their implications on system performance. [10]	4	L2
10	Explain about semaphores in detail with neat diagram. [10]	5	L2
	OR		
11	Explore different access methods used in file systems. Compare and contrast sequential access, direct access, and indexed access methods, highlighting their advantages and disadvantages. [10]	5	L2