



R22 Regulation

Subject code: 4E3ED

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Regular Examinations, February 2024

COMPUTER ARCHITECTURE AND ORGANIZATION

(Common to CSE & CSE(AI&ML))

Maximum Marks: 60

Date: 26.02.2024 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)	List the four main functions of a computer.	CO1	L1
b)	Define Accumulator.	CO1	L1
c)	State the functions of BUS interface unit.	CO2	L1
d)	Distinguish between auto increment and auto decrement addressing mode.	CO2	L1
e)	State the condition for floating-point number to become normalized.	CO3	L3
f)	Perform the following operation on signed numbers using 2's compliment method: $(56)_{10} + (-27)_{10}$.	CO3	L1
g)	What are the possible modes of data transfer?	CO4	L1
h)	Mention the functions of associative memory.	CO4	L1
i)	What would be the effect, if we increase the number of pipelining stages?	CO5	L1
j)	What is the need for Inter Processor Communication?	CO5	L1
Part-B			
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
2	Explain about instruction cycle with a flowchart. [10M]	CO1	L2
OR			
3	Discuss about Computer registers using common bus system. [10M]	CO1	L2
4	Illustrate the use of various addressing modes with examples. [10M]	CO2	L5
OR			
5	Draw and explain 8086 CPU architecture. [10M]	CO2	L1
6	a) Explain in detail about floating point representation. [5M] b) Outline the addition and subtraction algorithm with suitable diagrams. [5M]	CO3	L2 L2
OR			
7	Explain about Booth's multiplication algorithm and solve Multiply 7 and 3. [10M]	CO3	L2
8	a) Explain the Strobe Control method of Asynchronous data transfer. What are the disadvantages of this method? [5M]	CO4	L2

	b) Construct an associative memory page table with number of words equal to the number of blocks in the main memory. [5M]		L3
	OR		
9	What is DMA? Explain about DMA operation using DMA controller. [10M]	CO4	L2
10	a) Give the major characteristics of RISC and CISC architectures. [5M] b) What is instruction pipelining? What are the conflicts that occurred during instruction pipelining? [5M]	CO5	L2 L1
	OR		
11	a) Define the Multiprocessor? Explain its characteristics. [5M] b) Write a note on Inter processor arbitration. [5M]	CO5	L1 L2