



R22 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Regular Examinations, December 2024

Subject code: 4E3ED

COMPUTER ARCHITECTURE AND ORGANIZATION

(CSE & CSE(AI&ML))

Maximum Marks: 60

Date: 11.12.2024

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)	What are the stages in instruction cycle.	CO1	L1
c)	State address sequencing.	CO2	L1
d)	Compare auto increment and auto decrement addressing mode.	CO2	L1
e)	State the condition for floating-point number to become normalized.	CO3	L1
f)	What are the data transfer instructions	CO3	L1
g)	Classify the possible modes of data transfer?	CO4	L1
h)	Mention the functions of associative memory.	CO4	L1
i)	What is the purpose of pipelining?	CO5	L1
j)	What is the need for Inter Processor Communication?	CO5	L1
Part-B			Bloom Tx level
Answer All the following questions. (5X10M=50Marks)			
2	a) List and explain the functional units of a computer. [5M] b) Explain about instruction cycle with a flowchart. [5M]	CO1	L3 L3
OR			
3	Elaborate general register organisation by describing basic computer organisation. [10M]	CO1	L3
4	Categorize and describe the design of 8086 architecture [10M]	CO2	L4
OR			
5	a) Discuss the inference of the register organization in 8086 b) List the advantages and disadvantages of hardwired control over micro-programmed control. [5M+5M]	CO2	L4
6	Elaborate the addition and subtraction algorithm with suitable example and diagrams. [10M]	CO3	L4
OR			
7	Examine the flowchart for floating point subtraction with a neat sketch and example. [10M]	CO3	L4

8	a) Analyze the Strobe Control method of Asynchronous data transfer. What are the disadvantages of this method? [5M] b) Construct an associative memory page table with number of words equal to the number of blocks in the main memory. [5M]	CO4	L4 L4
OR			
9	a) Draw and explain arithmetic pipeline for integer point multiplication. [5M] b) What is DMA? Explain three modes of DMA operations [5M]	CO4	L4 L2
10	a) compare the characteristics of RISC and CISC architectures. [5M] b) What is instruction pipelining? Inspect the conflicts that occurred during instruction pipelining? [5M]	CO5	L4 L4
OR			
11	a) Analyze the Multiprocessor based on its characteristics. [5M] b) List and explain the various forms available for establishing an interconnection structure in a multi-processor system? [5M]	CO5	L4 L2