



SVKM'S NMIMS

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Academic Year: 2022-2023

Program/s: B TECH /MBA TECH

Year: II Semester: IV

Stream/s: COMPUTER

Subject: Computer Organization and Architecture

Time: 03 hrs (10:00 am to 1:00 pm)

Date: 29 / 04 / 2023

No. of Pages: 02

Marks: 100

Final Examination

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

- 1) Question No. 1 is compulsory.
- 2) Out of remaining questions, attempt any 4 questions.
- 3) **In all 5 questions to be attempted.**
- 4) All questions carry equal marks.
- 5) **Answer to each new question to be started on a fresh page.**
- 6) **Figures in brackets on the right-hand side indicate full marks.**
- 7) **Assume Suitable data if necessary.**

Q1.		Answer briefly:	
CO-1, SO-1 BL-2	a.	Elaborate the functions of the following components: i. Program Counter ii. Instruction Register iii. Memory Address Register iv. Memory Buffer Register v. I/O Address Register	[5]
CO-1, SO-1 BL-2	b.	What is Flynn's Classification of Parallel Processing Systems?	[5]
CO-2, SO-1 BL-4	c.	Classify the types of memories used in computer architecture and explain anyone.	[5]
CO-3, SO-1 BL-1	d.	What do you mean by the Instruction Format? Draw and indicate its various parts.	[5]
Q2.			
CO-4, SO-1 BL-3	a.	Illustrate the methods to improve the performance of CPU. Discuss briefly various stages of instruction pipeline.	[10]
CO-3, SO-1 BL-2	b.	Discuss various addressing modes of 8086 with example.	[10]

Q3.			
CO-1, SO-1 BL-2	a.	What do you mean by Bus arbitration technique? Discuss in detail.	[10]
CO-2, SO-1 BL-2	b.	Sketch and explain computer memory hierarchy.	[10]
Q4.			
CO-1, SO-1 BL-2	a.	Discuss direct-mapping technique in detail.	[10]
CO-3, SO-1 BL-4	b.	Draw the block diagram of 8087-Maths Coprocessor. How does it work with 8086? Explain in detail.	[10]
Q5.			
CO-2, SO-1 BL-2	a.	What is Random Access Memory? Discuss its types in detail.	[10]
CO-3, SO-1 BL-2	b.	With the help of proper circuit diagram and equations, explain Carry Look Ahead adders (CLA) in detail.	[10]
Q6.			
CO-3, SO-1 BL-6	a.	What is Booth's algorithm? Sketch its flowchart and multiply (+7) and (+3) using Booth's algorithm. Consider the count value as 4.	[10]
CO-3, SO-1 BL-4	b.	List and explain elements of bus designs. Illustrate the Polling or Rotating Priority method using diagram.	[10]
Q7.			
CO-4, SO-1 BL-2	a.	Discuss the superscalar architecture with suitable diagrams.	[10]
CO-1, SO-1 BL-2	b.	Explain the functional view of a computer with proper diagram.	[10]