Code No.: AD305PC	R20	H.T.No.			8	R						

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Supply) - December- 2025
COMPUTER ORGANIZATION AND MICROPROCESSOR
(AI&DS)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	What is the difference between direct and indirect addressing modes?	[2M]
	b)	What is Routine? How microinstructions are stored in control memory?	[2M]
	c)	Draw the internal block diagram of 8086.	[2M]
	d)	Discuss flag register of 8086 in brief.	[2M]
	e)	What is an assembler?	[2M]
	f)	Differentiate between external and internal interrupt cycle of 8086.	[2M]
	g)	Perform the operation (-9) + (-6) = -15 with binary numbers.	[2M]
	h)	What is a Priority Interrupt?	[2M]
	i)	Illustrate the block diagram of RAM chip.	[2M]
	j)	What is pipelining?	[2M]

PART-B **(50 Marks)**

2. Illustrate a block diagram of a 64-word stack. Let SP = 000000 in the stack. How many items are there in the stack if: [10M]
(i) FULL = 1 and EMTY = 0? (ii) FULL = 1 and EMTY = 0?
What are the two instructions needed in the basic computer to set the E flip-flop to 1?

OR

3. Design the basic computer instruction format of memory-reference. Discuss about three opcode bits of memory-reference instructions. [10M]

4. Explain the execution of all the instructions of 8086 with an example. [10M]

OR

5. Draw and discuss a maximum mode 8086 system. What is the use of a bus controller in maximum mode? [10M]

6. Describe the procedure for coding the intersegment, intersegment jump and call instructions. [10M]

OR

7. Write a program to move a string of data words from offset 2000H to offset 3000H the length of the string is 0FH in assembly language. [10M]

8. Distinguish between synchronous data transfer and asynchronous data transfer. Explain different ways of performing asynchronous data transfer. [10M]

OR

9. What is divide overflow? Write about division algorithm and discuss an example of binary division with digital hardware. [10M]

10. What is an Instruction Pipeline? Explain the operation of Four- Segment Instruction Pipeline [10M]

OR

11. What is an Associative Memory? Explain its operation with the help of a figure. [10M]

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