Code No.: DS405PC | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Regular) - August- 2023
COMPUTER ORGANIZATION AND ARCHITECTURE
(CSD)

[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)	List out the four main functions of a computer.	[2M]
b)	What are the basic components of register transfer logic?	[2M]
c)	Define address sequencing?	[2M]
d)	Distinguish between auto increment and auto decrement addressing mode.	[2M]
e)	State the condition for floating-point number to become normalized.	[2M]
f)	Perform the following operation on signed numbers using 2's compliment method: $(56)_{10}+(-27)_{10}$.	[2M]
g)	State the drawbacks of programmed I/O and interrupt driven I/O.	[2M]
h)	Explain memory hierarchy?	[2M]
i)	What would be the effect, if we increase the number of pipelining stages?	[2M]
j)	Define the cache incoherence.	[2M]

PART-B **(50 Marks)**

2.	Draw the functional diagram of a computer and explain each block.	[10M]
	OR	
3.a)	What is Register Transfer? Explain the read memory and write memory operations.	[5M]
b)	What is a logic micro operation? Discuss in detail various types of logic micro operations.	[5M]
4.a)	List and explain the functions of control unit.	[5M]
b)	Illustrate the use of various addressing modes with examples.	[5M]
	OR	
5.a)	Describe the general register organization.	[5M]
b)	Discuss the two techniques to design the control unit..	[5M]
6.	Explain in detail about floating point representation.	[10M]
	OR	
7.	Explain about Booth's multiplication algorithm and solve Multiply 7 and 3.	[10M]
8.	Explain the I/O instructions and type of I/O instructions.	[10M]
	OR	
9.a)	Explain the Direct mapping techniques in cache memory with an example.	[5M]
b)	Explain about Direct Memory Access (DMA).	[5M]
10.	Give the major characteristics of RISC and CISC architectures.	[10M]
	OR	
11.a)	What is pipelining? Explain pipelining process with example.	[5M]
b)	Write a note on array processor.	[5M]

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