CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Supply) - December- 2025
COMPUTER ORGANIZATION AND ARCHITECTURE
(Common to CSE, IT, CSC & CSM)

[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) Define Computer organization.   [2M]
   b) What is Bus? Draw the bus structure.   [2M]
   c) What are the types of micro operations?   [2M]
   d) Define Addressing modes.   [2M]
   e) What are the different types of data representation?   [2M]
   f) Write signed-magnitude of the +14.   [2M]
   g) What is Cache memory?   [2M]
   h) Define DMA.   [2M]
   i) Write any two characteristics of CISC.   [2M]
   j) What are the three main types of pipelines?   [2M]

PART-B   (50 Marks)

2.a) Explain the architecture of a basic Computer.   [5 M]
  b) Draw the bus system for four registers and explain.   [5 M]

OR

3.a) Draw the flowchart for instruction cycle and explain.   [5M]
  b) Explain programmed-I/O in detail.   [5M]

4. Explain various type of addressing modes with example.   [10M]

OR

5. Illustrate design of control unit.   [10M]

6. Briefly explain about Division Algorithm with an example.   [10M]

OR

7. Perform the arithmetic operation (+42)+(-13) and (-42)-(-13) in binary using signed   [10M]
    2's complement representation for negative numbers.

8.a) Illustrate about asynchronous data transfer.   [5M]
  b) How can you justify Daisy Chain priority is useful in priority interrupt?   [5M]

OR

9.a) Explain Main Memory and its types.   [5M]
  b) Explain I/O process with a neat diagram.   [5M]

10. What is pipeline? Explain various types of parallelism in details.   [10M]

OR

11. Illustrate about inter process communication.   [10M]

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