CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–M.TECH–I–Semester End Examinations (Regular) - January- 2026
ADVANCED COMPUTER ARCHITECTURE (PE-V)
(CSE)

[Time: 3 Hours]   **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 10 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   (10 Marks)

1. a) Difference between multiprocessors and multicomputers.   [1M]
   b) What is the main feature of multivector processors?   [1M]
   c) What is superscalar technology?   [1M]
   d) Explain the role of memory hierarchy in parallel processing.   [1M]
   e) What is arithmetic pipeline design?   [1M]
   f) Mention one challenge of shared memory systems.   [1M]
   g) Mention one difference between SIMD and multivector processors.   [1M]
   h) What is a compound vector processor?   [1M]
   i) What is a multithreaded processor?   [1M]
   j) List one advantage of dataflow architecture.   [1M]

PART-B   (50 Marks)

2. Explain program partitioning and scheduling in parallel computing.   [10M]

OR

3. Analyze the role of system interconnection architectures in parallel systems.   [10M]

4. Discuss the scalability challenges in designing memory hierarchies.   [10M]

OR

5. Explain how performance metrics are used to evaluate scalable systems.   [10M]

6. Explain the role of superscalar pipeline design in improving performance.   [10M]

OR

7. Discuss the significance of weak consistency models in shared memory systems.   [10M]

8. Explain the role of synchronization mechanisms in multiprocessor systems.   [10M]

OR

9. Compare SIMD and multivector processors in terms of performance.   [10M]

10. Explain latency-hiding techniques with real-world examples.   [10M]

OR

11. Discuss the principles of multithreading in parallel systems.   [10M]

****