8391

B.Tech. (CSE) VIth Semester Examination, 2024

COMPUTER ARCHITECTURE

Paper : CS–603

Time : 3 Hours] [*M.M. : 70*

Note :– Answer any *five* questions. All questions carry equal marks.

1. What is parallel computing ? Explain Flynn's classification of computer in detail with the help of diagram. [14]
2. What is Amdahl's law and its limitations ? Describe POSIX threads and Pthreads API with example. [14]
3. Describe the structure of pipelining with its types and issues in pipelining performance and also differentiate between linear and non-linear pipeline. [14]

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4. Discuss Cache Coherence problem with the help of example and Synchronization mechanism in detail. [14]

5. Explain MIMD architecture with the help of diagram and also explain various types of MIMD. [14]

6. Briefly explain systolic architecture in detail. Also write the characteristics and advantages of systolic architecture. [14]

7. Write down the prefix sum algorithm. Consider the array A[] with elements [6, 3, –2, 4, –1, 0, –5]. Convert it into prefix sum array and ensure the following :

   (i) Calculate the sum between [0, 4]

   (ii) Calculate the sum between a range [1, 5] [14]

8. What do you mean by parallel algorithm ? And also elaborate PRAM model with the help of diagram. [14]

9. Describe the runtime library routines in detail with the help of execution environment routine. [14]

10. Explain Open MP implementation in C and its execution models in detail. [14]

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