Q.P. Code : 735400

(3 Hours) | Total Marks : 80

N.B. : (1) Question No. **1** is **Compulsory**

(2) Attempt any **three** questions out of remaining **five** questions.

(3) Assume suitable data wherever required but justify the same.

(4) Assumption made should be clearly stated.

1. (a) Explain Data Flow computers with example. 5

   (b) What is the basic task of scheduler? Define i) Latency, ii) Initiation 5
   Rate, iii) Stage Utilization and iv) Forbidden Latency.

   (c) What are the different models of middleware? 5

   (d) What are the issues in designing a distributed system? 5

2. (a) A machine is run on many applications and the instruction mix is 10
   collected. Loads/Store are 10%, Integer add/sub 15%, FP add/sub
   50%, FP multiply divide 5% and others 5% and branches 15%. The
   clock cycles consumed by these instructions are: Loads 2, Integer add/
   sub 1, FP add/sub 5, FP multiply/divide 20, others 1. Find which
   component of the architecture requires enhancement first. After
   incorporating the enhancement which makes clock cycles requirements
   as 2. Find the overall Speedup?

   (b) What is SIMD Architecture? Explain with example SIMD Mesh 10
   Connected Architecture.

3. (a) What is an interlock? Explain the following three different classes of 10
   hazards :
      (i) Control Hazards
      (ii) Resource hazards
      (iii) Operand hazards

   (b) Explain a pipelined multiplication using Digit Products of Fixed Point 10
   Multiplication Pipeline.

4. (a) Explain the difference between Data Centric and Client Centric 10
   Consistency Models. Explain one model of each.

   (b) Explain stream oriented communication with suitable example 10

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5. (a) Explain the distributed algorithms for Mutual Exclusion? What are the advantages and disadvantages of it over centralized algorithms? **10**

   (b) Write a Suzuki-Kasami's Broardcast Algorithm. Explain with example. **10**

6. (a) Compare Load sharing to task assignment and Load balancing strategies for scheduling processes in a distributed system. **10**

   (b) What are the desirable features of good distributed file systems? Explain file sharing semantic of it. **10**

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