

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 Rate, iii) Stage Utilization and iv) Forbidden Latency. **5**
 (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 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. **10**
 (b) What is SIMD Architecture? Explain with example SIMD Mesh Connected Architecture. **10**
3. (a) What is an interlock? Explain the following three different classes of hazards : **10**
 (i) Control Hazards
 (ii) Resource hazards
 (iii) Operand hazards
 (b) Explain a pipelined multiplication using Digit Products of Fixed Point Multiplication Pipeline. **10**
4. (a) Explain the difference between Data Centric and Client Centric Consistency Models. Explain one model of each. **10**
 (b) Explain stream oriented communication with suitable example **10**

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Q.P. Code : 735400

2

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 Broadcast 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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