PG Odd Semester (CBCS) Exam., December—2016

COMPUTER SCIENCE

(9th Semester)

Course No. : CS–903 (O)

(Parallel and Distributed Computing)

Full Marks : 75
Pass Marks : 26

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. *(a)* Illustrate the architectures of shared memory multiprocessor system and message passing multiprocessor system. 10

(b) Explain the MESH architecture for a message passing multiprocessor system. 5

2. *(a)* Illustrate the Flynn classification of multiprocessor system. 7

(b) Explain Amdahl and Gustafson's law in connection with speed-up of parallel processing system. 8

UNIT—II

3. What do you mean by blocking and non-blocking networks for parallel processing? Explain various blocking and non-blocking network architectures. 15

4. *(a)* Explain a PRAM algorithm for list ranking in detail. 10

(b) Design a butterfly network with 08 processing nodes. 5

UNIT—III

5. *(a)* State the parallel algorithm for odd-even transposition sort and show its working with the following sequence of numbers : 10

2, 15, 9, 7, 32, 128, 256, 65

(b) Explain the issues related to sorting on parallel computers. 5

6. *(a)* Illustrate the zero-one principle. 5

(b) What is bitonic sequence? State and illustrate the working of a parallel algorithm for bitonic sorting. 10

UNIT—IV

7. *(a)* Explain a parallel processing scheme for branch and bound search. 7

(b) Write a parallel algorithm for finding the maximum and the minimum number in a given list of numbers. 8

8. *(a)* Discuss an architecture of a system for distributed file servers. 8

(b) What is client-server computing? Explain the architecture for a client-server system with a set of parallel servers. 7

UNIT—V

9. *(a)* What do you mean by distributed database system? Explain a model of concurrency control in distributed database system. 10

(b) Discuss the working of Message Passing Interface (MPI) for parallel and distributed computing. 5

10. *(a)* What is PVM? Explain the working of a workstation cluster based on PVM technique. 10

(b) Explain share memory distributed system architecture. 5

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