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Question Paper Code : 40921

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018
Eighth Semester
Computer Science and Engineering
CS 6801 – MULTI-CORE ARCHITECTURES AND PROGRAMMING
(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Define the symmetric shared memory.

2. List the pros and cons of distributed memory.

3. Write down the performance metrics.

4. Define mutex lock and spin lock.

5. Explain scope of a variable.

6. Define Race Condition.

7. Give the commands for MPI.

8. Define Broadcast and butterfly MPI.

9. How to compute n-body forces ?

10. List the data structures used for the serial implementations.

PART – B

(5×16=80 Marks)

11. a) i) State and explain Amdahl's law in detail. (8)

   ii) Outline the steps in Designing and Building Parallel Programs.
   Give example. (8)

   (OR)

   b) Elaborate the classification of computer architecture used in parallel computing system.

12. a) i) Discuss in detail about producer-consumer synchronization.　　(8)

　　ii) Write a simple semaphore to sent a message.　　(8)

　　　　　　(OR)

　b) i) List out the approaches and tools for detecting data races.　　(8)

　　ii) Write a short notes on deadlocks, livelocks and named pipes.　　(8)

13. a) Elaborate OpenMP execution model and memory model in detail.

　　　　　　(OR)

　b) Write an example program for shared memory programming with pthread.

14. a) i) Explain loop handling in detail.　　(8)

　　ii) Describe about MPI Program execution with example.　　(8)

　　　　　　(OR)

　b) Explain the Virtual memory in detail.

15. a) i) Describe collective vs. point to point communication.　　(8)

　　ii) Describe the Parallelizing the tree-search program using OpenMP.　　(8)

　　　　　　(OR)

　b) Explain about tree search with Pseudo-code for a recursive solution to TSP using depth-first search.