Question Paper Code : 91413

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Eighth/Seventh Semester

(Common to : Computer Science and Engineering)

CS 6801 – MULTI - CORE ARCHITECTURES AND PROGRAMMING

(Regulations – 2013)

(Also common to PTCS 6801 – Multi-core Architectures and Programming for B.E. Part – Time – Seventh Semester – Computer Science and Engineering – Regulations 2014)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. Define speed up and efficiency.

2. What is directory-based cache coherence ?

3. Draw the block diagram of distributed memory system and shared memory system.

4. Explain scope of variable.

5. What is named pipes ?

6. Define loop carried dependency with an example.

7. Write a Pseudocode for the MPI implementation of the reduced n-body solver.

8. What is NP - complete problem ?

9. Differentiate collective vs. point-to-point communications.

10. Write the Pseudocode for a recursive solution to TSP using depth-first search.

PART – B   (5×13=65 Marks)

11. a) Explain shared and distributed memory interconnects.

(OR)

b) Explain in detail about Cache coherence.

12. a) Describe Synchronization primitive in detail.

(OR)

b) Describe the Communication between Threads and Processes.

13. a) Explain about scheduling loops.

(OR)

b) Describe the parallel for DIRECTIVE in detail.

14. a) Elaborate on the performance evaluation of MPI programs.

(OR)

b) Describe the COLLECTIVE COMMUNICATION in detail.

15. a) Explain the parallelizing the basic solver using OpenMP ? How do you evaluate OpenMP code ?

(OR)

b) Explain about the implementation of tree search using MPI and static partitioning.

PART – C   (1×15=15 Marks)

16. a) Develop a MPI based program for implementing serial matrix-vector multiplication.

(OR)

b) Summarize the challenges of parallel programming and discuss about its impact on performance.