Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 52878

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Eighth/Seventh Semester

Computer Science and Engineering

CS 6801 — MULTI-CORE ARCHITECTURES AND PROGRAMMING

(Regulation 2013)

(Common to: PTCS 6801 – Multi-Core Architectures and Programming for
B.E. (Part – Time) for seventh semester – Computer Science and
Engineering – Regulation 2014)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the purpose of multi-core integrated circuits?

2. List of problems considering the increases in performance of multi core architectures.

3. How to avoid data races?

4. Define Critical Region.

5. What is the extension to distributed memory?

6. Define Von Neumann Architecture.

7. How OpenMP programs are compiled and executed?

8. What does the distributed memory consist of in MIMD?

9. Give the List of MPI Functions.

10. Define MPI Derived Data Types.

PART B — (5 × 13 = 65 marks)

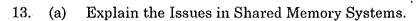11. (a) Discuss in detail about the Interconnection networks.

Or

(b) Discuss in detail about the single and multi core architectures.

12. (a) Explain the Code for shared memory using Pthreads.

Or

(b) Explain the Code of message passing systems using MPI.

13. (a) Explain the Issues in Shared Memory Systems.

Or

(b) Explain in detail about the pseudocode for recursive solution and non recursive solution to TSP using depth first search.

14. (a) How can we decide which API, MPI, Pthreads, or OpenMP is best for our application?

Or

(b) Differentiate Collective and Point-to-Point Communication and Draw the architecture for tree structured Communication.

15. (a) Explain in detail about Patterns for parallel programming and OPL.

Or

(b) Explain in detail about the Challenges to Parallel Programming.

PART C — (1 × 15 = 15 marks)

16. (a) Explain with program for point-to-point communication and collective communication.

Or

(b) Write the tree search program both in OpenMp and MPI.

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