

2022

M.Sc.

4th Semester Examination

COMPUTER SCIENCE

PAPER—COS-402

ELECTIVE-II (PARALLEL COMPUTING)

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

1. Answer any four questions : 4×2

(a) What is parallel computing?

(b) What is Moor's law?

(Turn Over)

- (c) Distinguish between main memory and cache memory.
- (d) What is latency of a memory?
- (e) What is cache coherence?
- (f) #pragma omp parallel num_threads(numProcs)
- What does it mean in openMP?

2. Answer any *four* questions : 4×4

- (a) Differentiate between UMA and NUMA. 4
- (b) Define granularity. Differentiate between fine-grained and course grained granularity. 1+3
- (c) Differentiate between SIMD and MIMD architecture. 4
- (d) Define Amdahl's Law. 4
- (e) Explain hypercube interconnection network. 4
- (f) What are the performance metrics of parallel systems? 4

3. Answer any *two* questions : 2×8

- (a) What are the evaluation parameters of a network topology? Explain each of them. 8
- (b) Explain the characteristics of Maspar processor architecture. How does it differ from nCube3 processor architecture? 4+4
- (c) What are PRAM model? What are the subclasses of PRAM model? Explain. 2+6
- (d) Define firstprivate and lastprivate construct with respect to openMP. 4+4

[Internal assessment – 10]
