

M.Sc. 1st Semester Examination, 2023

COMPUTER SCIENCE

PAPER – COS-102(M1 & M2)

Full Marks : 50

Time : 2 hours

Answer all questions

The figures in the right hand margin indicate marks

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

PAPER – COS-102 (M1)

[Marks : 20]

1. Answer any *two* questions : 2 × 2

- (a) Differentiate between direct interconnection network and indirect interconnection network.

- (b) How does tree interconnection network different from fat tree network ?
- (c) What are the drawbacks of automatic parallelization ?
- (d) Name two parallel processors which use multistage interconnection network.

2. Answer any *two* questions : 4 × 2

(a) Define Taurus interconnection network. How does it different from mesh interconnection network ?

(b) With clear block diagram, explain NUMA architecture. 4

(c) 40% of a program is parallelizable, how much speed-up can you get by going for a dual-core processor (assuming everything else remains the same) ? Redo the problem if 100% of the application is parallelizable.

(d) With appropriate example define firstprivate and lastprivate directives. 2 + 2

3. Answer any *one* question : 8×1

(a) Explain PRAM model for parallel computation. 8

(b) Explain open MP execution model and open MP memory model. 4 + 4

PAPER – COS-102(M2)

[Marks : 20]

4. Answer any *two* questions : 2×2

(a) What do you mean by 'pay as you go' in cloud computing?

(b) What are the challenges of Cloud computing?

(c) What is Virtualization? Why cloud need Virtualization?

(d) What is Utility computing in the cloud ?

5. Answer any *two* questions : 4 × 2

(a) Describe the vision introduced by cloud computing.

(b) Classify and explain the different types of cloud.

(c) Write short notes on EC2 and S3.

(d) What is Virtualization ? Why cloud need Virtualization ?

6. Answer any *one* of the following : 8 × 1

(a) Briefly explain the role of service-oriented Computing in the Cloud.

(b) Explain the reference model of Cloud Computing.

[Internal Assessment – 10 Marks]
