

CBCS SCHEME

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15CS72

Seventh Semester B.E. Degree Examination, June/July 2023

Advanced Computer Architecture

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain elements of modern computers. (04 Marks)
- b. Explain how performance factors are influenced by the system attributes. What are system attributes mention in detail. (07 Marks)
- c. Explain SIMD machine model with neat sketch. (05 Marks)

OR

- 2 a. Explain static interconnection networks. What are system interconnection networks? (08 Marks)
- b. Explain efficiency utilization and quality for evaluating parallel computer models. (08 Marks)

Module-2

- 3 a. Explain architectural distinctions between CISC and RISC processors with neat sketch. (04 Marks)
- b. Explain the Sun Microsystem SPARC architecture with neat sketch. Explain in brief RISC scalar processors. (05 Marks)
- c. What are superscalar processors? Explain in brief the power architecture of the IBM/RS6000 superscalar processors with neat sketch. (07 Marks)

OR

- 4 a. Explain the properties of memory technology Inclusion Coherence and Locality. (08 Marks)
- b. Explain TLB, Paging and Segmentation in virtual memory management. (08 Marks)

Module-3

- 5 a. Explain Arbitration Transaction and Interrupt of the Bus system. (07Marks)
- b. Explain shared memory organization and memory interleaving in multiprocessor models. (04 Marks)
- c. Write a note on : (i) Sequential (ii) Weak consistency memory models. (05 Marks)

OR

- 6 a. Explain speedup, efficiency and throughput of a linear pipeline processors. (08 Marks)
- b. Explain pipeline unit for fixed-point multiplication of 8-bit integers with neat sketch. (08 Marks)

Module-4

- 7 a. Explain (i) Omega (ii) Butterfly multistage networks with examples. (08 Marks)
- b. What are multicast routing algorithm explain in multiprocessors? (08 Marks)

OR

- 8 a. Explain multi-vector multiprocessing architectural design concepts. (08 Marks)
- b. Explain principles of multithreading architecture in multiprocessor systems. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Explain Parallel Programming models. (04 Marks)
b. Explain optimizing compilers for parallelism. (05 Marks)
c. What are the constructs of parallel programming languages? Explain. (07 Marks)

OR

- 10 a. Explain software tool types for parallel programming environments, with example. (08 Marks)
b. What are the principles of synchronization mechanism in parallel programming and explain multiprocessor execution models. (08 Marks)
