CBCS SCHEME

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21CS643

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Advanced Computer Architecture

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Describe Flynn's classification of computer architecture. **(10 Marks)**
b. With a neat diagram, describe the three shared memory multi processor models. **(10 Marks)**

OR

2 a. With respect to dependencies between the instructions, discuss the following with example:
i) Data dependency
ii) Control dependency
iii) Resource dependency. **(10 Marks)**
b. Illustrate the architecture of vector super computer with neat diagram. **(10 Marks)**

Module-2

3 a. Distinguish between typical RISC and CISC processor architectures. **(10 Marks)**
b. Illustrate the architectural features of VLIW processor with timing diagram. How does it differ from super – scalar processor? **(10 Marks)**

OR

4 a. With a neat diagram, discuss the hierarchical memory technology. **(10 Marks)**
b. Discuss the virtual memory models for multiprocessor system. **(10 Marks)**

Module-3

5 a. Discuss bus arbitration and its types in multiprocessor systems. **(10 Marks)**
b. Discuss cache memory organizations using direct, fully associative and set-associative methods. **(10 Marks)**

OR

6 a. Describe low-order and high-order interleaved memory organizations. **(10 Marks)**
b. Illustrate sequential and weak consistency models. **(10 Marks)**

Module-4

7 a. Illustrate snoopy protocols with it approaches. **(10 Marks)**
b. With a neat diagram, describe the implementation models of SIMD. **(10 Marks)**

OR

8 a. Discuss different vector access memory schemes. **(10 Marks)**
b. Illustrate the processor consistency models. **(10 Marks)**

Module-5

9 a. Define parallel programming models. Discuss any two models. **(10 Marks)**
b. With a neat diagram, illustrate different phases of parallelizing compiler. **(10 Marks)**

OR

10 a. Describe testing algorithm for dependence testing. **(10 Marks)**
b. Illustrate the dynamic scheduling of a pipeline using Tomasvlo's algorithm. **(10 Marks)**

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