CBCS SCHEME

USN [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   **15EC754**

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020
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. Discuss evaluation of computer architecture with tree structure.   (08 Marks)
   b. With a neat block diagram, explain NUMA models for multiprocessor systems.   (08 Marks)

OR

2 a. Explain different levels of parallelism in program execution on modern computers. (08 Marks)
   b. Discuss five types of data dependence to describe the relations.   (08 Marks)

Module-2

3 a. With the help of global architecture and interior design of a processing element. Explain data flow mechanism. (08 Marks)
   b. Write a short note on demand–driven mechanisms.   (08 Marks)

OR

4 a. Summarize the important characteristics of parallel algorithms which are machine implementable. (08 Marks)
   b. List and explain the basic matrices affecting the scalability of a computer system. (08 Marks)

Module-3

5 a. Explain Amdahl's law for fixed workload to speedup performance.   (08 Marks)
   b. With architectures explain RISC and CISC processors.   (08 Marks)

OR

6 a. With an example of IBM RS/6000 architecture explain super scalar processor. (08 Marks)
   b. With relevant block diagram, explain VLIW processor architecture and pipelining. (08 Marks)

Module-4

7 a. Construct asynchronous and synchronous model for linear pipeline process.   (08 Marks)
   b. Write a short note on effect of branching and branch prediction techniques in pipeline. (08 Marks)

OR

8 a. With a neat block diagram, explain memory hierarchy for a shared –memory multiprocessor. (08 Marks)
   b. Write a note on direct mapping and associative caches.   (08 Marks)

Module-5

9 a. Explain three types of cache directory protocols.   (08 Marks)
   b. Discuss any one cache coherence protocols.   (08 Marks)

OR

10 a. Discuss symmetric shared memory and distributed shared memory architectures. (08 Marks)
   b. List and explain directory protocols design challenges.   (08 Marks)

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