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Question Paper Code : 40377

M.E./M.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

First Semester

Computer Science and Engineering

CP 5152 — ADVANCED COMPUTER ARCHITECTURE

(Common to M.E. Computer Science and Engineering (With Specialization in Networks)/M.E. Multimedia Technology/M.Tech. Information Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define dynamic scheduling.
2. List the limitations ILP.
3. Distinguish between Virtual Memory and Virtual Machine.
4. What are the ways in which performance of cache memory can be increased?
5. Define multistage Interconnection Network with an example.
6. Give the difference between Centralized and symmetric shared memory.
7. Draw the diagram of homogeneous multicore architecture.
8. What is meant by scale computer?
9. Define GPGPU computing.
10. Give the real time examples as how SIMD is extended in multimedia.

PART B — (5 × 13 = 65 marks)

11. (a) Explain Instruction Delivery and Speculation in detail with necessary diagrams.

Or

- (b) Explain Multithreading in detail with examples.

12. (a) Explain different memory technologies and optimization techniques in detail.

Or

- (b) Explain design of memory hierarchies with a neat diagram.

13. (a) List out the different memory consistency models. Explain each model with necessary examples and diagrams.

Or

- (b) Explain Distributed Shared memory architecture in detail.

14. (a) Explain in detail about Intel multicore architectures with a block diagram.

Or

- (b) Explain about Google Warehouses and scale computer.

15. (a) What are the steps involved in detecting and enhancing loop level parallelism? Explain.

Or

- (b) Describe about vector processor architecture and GPGPU computing.

PART C — (1 × 15 = 15 marks)

16. (a) ABC Banking Organization is having offices at three different places and located geographically apart (Mumbai, Chennai and Calcutta). As of now separate servers are maintained for each of their office. The management decides to go for cloud based solution. Explain the following

- (i) What type of cloud can be chosen?
- (ii) Write the SLA involved?
- (iii) How would you tackle security challenges if any?
- (iv) What Cloud service would be appropriate for this organization?
- (v) Consolidate the solution in terms of a design diagram.

Or

- (b) Explain the design considerations that have contributed to the performance of Google Warehouse – Scale Computer.