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Question Paper Code	12335
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M.E. /M.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023

First Semester

M.E. - Big Data Analytics

20PBDPC103 – MULTICORE ARCHITECTURE

(Regulation 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. What is response time? | <i>2,K1,CO1</i> |
| 2. State the need for Instruction Level parallelism. | <i>2,K2,CO1</i> |
| 3. Classify two ways in which virtual machine is handled. | <i>2,K2,CO2</i> |
| 4. Classify memory hierarchy. | <i>2,K2,CO2</i> |
| 5. Differentiate Buses from crossbar networks. | <i>2,K2,CO3</i> |
| 6. What is cache coherence? | <i>2,K1,CO3</i> |
| 7. Compare Homogeneous and heterogeneous multi-core architecture. | <i>2,K2,CO4</i> |
| 8. Define cloud computing. | <i>2,K1,CO4</i> |
| 9. Analyze the Vector functional units. | <i>2,K2,CO5</i> |
| 10. List the Structural hazards in vectored architecture. | <i>2,K1,CO5</i> |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Draw and Explain the SMT and CMP Architecture in detail. *13,K3,CO1*

OR

- b) Summarize in details about the various dependences causes in ILP and the limitations of ILP. *13,K3,CO1*

12. a) Express in detail about the optimizations of cache performance. *13, K4,CO2*

OR

- b) (i) Explain in detail about Virtual Memory. *06,K2,CO2*
(ii) List the memory technologies used in Computer Architecture. *07,K2,CO2*

13. a) Analyze the role of cache coherence in multiprocessor. *13,K4,CO3*

OR

- b) (i) Describe Multistage Interconnection Networks. *06,K3,CO3*
(ii) Explain the Bus Network. *07,K3,CO3*

14. a) Describe the following topics: *06,K3,CO4*
(i) Homogenous Multi-core architecture. *07,K3,CO4*
(ii) Heterogeneous Multi-core architecture.

OR

- b) Explain in detail the Computer Architectural details of Warehouse Scale Computers. *13,K3,CO4*

15. a) (i) Analyze the basic Graphics processing Units. *07,K3,CO5*
(ii) Explain the details of GPGPU computing. *06,K3,CO5*

OR

- b) Identify the need for SIMD Extension for multimedia and explain with an example. *13,K3,CO5*

PART C (1 × 15 = 15 Marks)

16. a) Explain the primary components of instruction set architecture of AMIPS and explain vector architecture. *15,K2,CO6*

OR

- b) Explain the issues in finding dependencies and eliminating dependent computation. *15,K2,CO6*