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M.E./M.Tech. Degree Examinations, January 2017

First Semester

COMPUTER SCIENCE AND ENGINEERING

CP16103-MULTICORE ARCHITECTURE

(Regulation 2016)

QP Code: 810758

Time: Three hours

Maximum : 100 marks

Answer **ALL** questions

PART A - (10 X 2 = 20 Marks)

1. What do you mean by task level parallelism?
2. What is mean by principal of Locality?
3. State the challenges on Graphics for the GPU programmer and some of its possible solutions.
4. How to program the vector architecture?
5. What is symmetric shared memory architecture?
6. How does the processor obtain significant performance advantages in the relaxed consistency models?
7. What is utility computing? How it is related to cloud computing?
8. What are the design features of warehouse-scale computers?
9. What is digital signal processor?
10. Define latency.

PART B - (5 X16 = 80 Marks)

11. (a) (i) Explain in detail about the various trends in technology, power, energy and cost. **(8)**
(ii) Explain in detail the data dependencies and their hazards in instruction level parallelism (ILP). **(8)**
- (b) (i) What are the limitations of single core processor? **(8)**
(ii) Discuss in detail about multicore era in detail. **(8)**
12. (a) Explain how the vector processor works and its vector execution time with a neat basic structure of vector architecture. **(16)**

(OR)

- (b) Discuss the concepts of detecting and enhancing loop level parallelism. (16)
13. (a) (i) With the neat diagram, explain the shared memory architecture. (8)
(ii) What is multiprocessor cache coherence? Explain. (8)
- (OR)**
- (b) (i) Describe the significances and model of memory consistency with examples. (8)
(ii) Discuss the design issues of interconnection network. (8)
14. (a) (i) Discuss on warehouse scale computer. (4)
(ii) Write short note on Map Reduce model. (4)
(iii) Explain in detail about the goals and requirements of computer architecture of a warehouse scale computer. (8)
- (OR)**
- (b) Elaborate the architecture of a cloud. Discuss the commercial applications of the cloud. (16)
15. (a) Explain in detail about signal processing and Embedded Applications. (16)
- (OR)**
- (b) Write short notes on: (i) Digital Signal Processor (8)
(ii) Embedded Multi Processor (8)