

Code : 1P3116

**M.Tech. I Semester Supplementary Examinations, July/August 2014**  
**Advanced Computer Architecture**  
 ( CSE )

Time: 3 hours

Max Marks: 60

*Answer any FIVE of the following*  
*All questions carry equal marks (12 Marks each)*

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1. a) Explain how do you detect parallelism in a program using Bernstein's conditions 5M  
 b) Define the following terms  
 (i) Digital buses (ii) mesh versus torus (iii) multicast and broadcast 7M
2. a) Explain the Gustafon's Law, and also explain how scaling for higher accuracy and fixed time speedup can be attained. 4M  
 b) Explain the inclusion property and memory coherence requirements in a multilevel memory hierarchy. 4M  
 c) Distinguish between write-through and write-back policies in maintaining the coherence in adjacent levels. 4M
3. Discuss the memory bandwidth analysis and fault tolerance issues in shared memory organization. 12M
4. a) Determine the percentage of permutations that can be realized in one pass through a 64-input Omega network built with 2 x 2 switch modules associated with multistage Omega networks using different-sized building blocks. 7M  
 b) Write about crossbar switch and multiport memory. 5M
5. a) What are the advantages and disadvantages in using SIMD computers as compared with the use of pipelined supercomputers for vector processing? 6M  
 b) Compare the connection machines CM-2 and CM-5 in their architectures, operation modes, function capabilities and potential performance. 6M
6. a) From scalability point of view, why is fine-grain parallelism more appealing than medium-grain or coarse-grain parallelism for building MPP system? 6M  
 b) Discuss the various latency hiding techniques 6M
7. a) Explain in brief the meaning of alias analysis as applied to runtime memory addresses. 8M  
 b) Describe in brief what is mean by the context of a thread, and what are the typical operation involved in switching between threads. 4M
8. a) What is line width in VLSI technology? What are the various line widths currently being used? 6M  
 b) Compare the salient characteristics of PCI and PCI Express interconnect standards. 6M

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**Code : 1P3114**

**M.Tech. I Semester Supplementary Examinations, July/August 2014**  
**Advanced Computer Networks**  
(CSE)

**Time: 3 hours**

**Max Marks: 60**

*Answer any FIVE of the following*  
*All questions carry equal marks (12 Marks each)*

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|----|--------------------------------------------------------------------------|----|
| 1. | a) Explain different fundamental approaches to building a network core.  | 6M |
|    | b) Discuss the 5 layer TCP/IP model.                                     | 6M |
| 2. | a) List and explain different categories of multiplexing schemes.        | 6M |
|    | b) Explain with example, cyclic redundancy check error detection method. | 6M |
| 3. | a) Discuss with example, OSPF intradomain routing protocol.              | 6M |
|    | b) Discuss with example, Bellman-Ford algorithm.                         | 6M |
| 4. | a) Explain slow start and retransmit TCP congestion control methods.     | 6M |
|    | b) Write short notes on HTTP.                                            | 6M |
| 5. | a) Discuss about 802.11 MAC layer.                                       | 6M |
|    | b) Explain mobile IP routing.                                            | 6M |
| 6. | a) Discuss the various basic optical networking devices.                 | 6M |
|    | b) Write short notes on optical routers.                                 | 6M |
| 7. | a) Explain tunneling and PPP in VPN. Also discuss security in VPN.       | 6M |
|    | b) Explain session initiation protocol (SIP).                            | 6M |
| 8. | a) Discuss DSDV routing protocol for mobile ad-hoc networks.             | 6M |
|    | b) List and explain the various components of wireless sensor node.      | 6M |

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