Code :R7421901 **1**

IV B.Tech II Semester(R07) Regular Examinations, April 2011
ADVANCED COMPUTER ARCHITECTURE
(Electronics & Computer Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Write notes on CPU performance in computer design
   (b) What is the difference between cost and price? Why they differ and by how much?
2. (a) Discuss briefly conditional branch operations? Give examples.
   (b) Discuss the role of a compiler?
3. (a) Write notes on pipelining. How does it differ from parallelism?
   (b) Write briefly about data dependent hazard.
4. (a) Write briefly about basic compiler techniques for exposing ILP.
   (b) Compare Hardware Vs Software solutions.
5. (a) Explain how to reduce "capacity misses"?
   (b) Explain how optimized software reduces the miss rate.
6. (a) Explain how atomic primitives be used to implement synchronization.
   (b) Give the advantages of shared memory organization.
7. (a) Show the interface between the I/O device and an I/O bus to the CPU memory bus by a diagram. Explain.
   (b) Write briefly about the synchronous and asynchronous buses.
8. (a) What is the natural size of message. Explain how a message size is important in getting full benefits of fast network?
   (b) Which media are available to connect computing together?

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Code :R7421901 **2**

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(Electronics & Computer Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. Write notes on CPU performance in computer design?
2. Discuss in detail conditional branch operations? Give examples for each.
3. What are the limitations of simple pipelining? Discuss the solutions for the same.
4. What are the basic compiler techniques for exposing ILP?
5. (a) Explain how to reduce " capacity misses?
   (b) Explain how optimized software reduces the miss rate.
6. (a) Mention the two groups MIMD computers and explain.
   (b) Give the advantages of shared memory organization.
7. (a) Give the characteristic of common desktop I/O buses.
   (b) Write about the bus design decision.
8. (a) Give the message format of the simple network and steps to send a message and message reception?
   (b) Explain about the terms bandwidth, time of flight, transformation time.

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Code :R7421901 **3**

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ADVANCED COMPUTER ARCHITECTURE
(Electronics & Computer Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Write in brief the fundamentals of computer design.
   (b) What is the difference between cost and price? Why they differ and by how much?
2. Explain various addressing modes in computer architecture?
3. (a) Write notes on pipelining . How does it is different parallelism?
   (b) Write the limitation of obstruction level parallelism.
4. Write about the basic complier techniques for exposing ILP.
5. (a) How are conflict misses reduced?
   (b) What is write back and write through cache?
6. (a) Explain how atomic primitives be used to implement synchronization.
   (b) Explain about fine grained multi threading .
7. (a) Write in brief about Reliability, Availability and Dependability.
   (b) How does OS provides the file abstraction.
8. (a) What types of transfers must a computer interconnection structure support?
   (b) White is brief about designing a cluster.

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Code :R7421901 4

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Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Explain about technology trends. Briefly write about Cost, Price and their trends.
   (b) Briefly explain about quantitative principles of computer design.
2. (a) Explain with examples the Addressing modes.
   (b) Briefly explain about the instructions for control flow.
3. (a) Write about Data Hazards.
   (b) Write the steps involved in handling an instruction with a branch target buffer with neat flow chart.
4. (a) Explain the basic VLIW approach with an relevant example.
   (b) Write about Hardware Vs Software speculation mechanisms.
5. (a) Explain with neat diagram the memory hierarchy.
   (b) Write in brief the first miss penalty rate reduction technique.
6. (a) What is Amdal's Law? Explain the challenges of parallel processing.
   (b) Draw and explain the state transition for an individual cache block in a directory based system.
7. (a) Explain about Redundant-Arrays of Inexpensive Disks.
   (b) Write about I/O performance measures.
8. (a) Write in brief Network Topology.
   (b) Write in brief the popularity of Cluster's.

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