

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET  
(AUTONOMOUS)

***M.Tech. I Semester Regular/Supplementary Examinations April - 2013***

***Advanced Computer Architecture  
(CSE)***

**Max. Marks: 60**

**Time: 03 Hours**

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**Answer any five questions  
All Questions carry equal marks (12 Marks each)**

1. a) Explain shared memory multiprocessor models in detail. 06M  
b) Give brief description about the different types of dependencies and Bernstein's conditions. 06M
2. a) Define speed up. How Amdahl's law can be used to find the speed up of a computer system. Explain. 06M  
b) Distinguish between CISC and RISC 06M
3. With help of the diagram, explain the different mapping and associative caches. 12M
4. a) What is meant by cache coherence. Explain, how this problem can be avoided. 06M  
b) Explain briefly about the message routing schemes. 06M
5. a) Describe the characteristics of vector processing. 06M  
b) Discuss in detail about the inter process communication. 06M
6. a) What is meant by relaxed memory? Explain it in detail. 06M  
b) Write short notes on distributed coherent cache. 06M
7. a) Give brief description about the Tomasulo's algorithm. 06M  
b) What are the limitations in exploiting instruction level parallelism? 06M
8. Explain in detail about the trends in parallel system. 12M

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**M.Tech. I Semester Regular/Supplementary Examinations April – 2013**

**Advanced Computer Networks  
( CSE )**

Max. Marks: 60

Time: 03 Hours

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**Answer any five questions**

**All Questions carry equal marks (12 Marks each)**

1. (a) Explain datagram networks and virtual circuit networks. Discuss the merits and demerits with each of these networks. 6M
- (b) Discuss with examples, different classes of IP addresses and their formats. 6M
2. (a) What is multiplexing? List and explain, various types of multiplexing schemes. 6M
- (b) Discuss with example, CRC error detection technique. 6M
3. What is congestion? Discuss various methods for controlling congestion at network layer. 12M
4. (a) Write the format of TCP segment and describe all the fields in it. 6M
- (b) Explain the TCP connection establishment process. 6M
5. Discuss in detail about wireless LAN technologies. 12M
6. List and explain various basic optical networking devices. 12M
7. Discuss the following VoIP signaling protocols:
  - (a) Session Oriented Protocol 6M
  - (b) H.323 protocol 6M
8. Write short notes on the following:
  - (a) DSDV routing protocol 6M
  - (b) DSR routing protocol 6M

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***M.Tech. I Semester Regular/Supplementary Examinations April - 2013***

***Advanced Databases  
( CSE )***

Max. Marks: 60

Time: 03 Hours

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Answer *any five* questions

All Questions carry equal marks (12 Marks each)

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|----|---|-----|
| 1. | Explain in Detail about Promises of DDBS.   | 12M |
| 2. | Define Fragmentation and Explain in Detail about Vertical Fragmentation.                    | 12M |
| 3. | Define Query Processing and Explain various layers of Query processing with neat diagram    | 12M |
| 4. | Define Query Optimization Process and explain Query Optimization process with neat Diagram. | 12M |
| 5. | a) Define transaction and explain the properties of Transactions.                           | 6M  |
|    | b) Explain serializability.   | 6M  |
| 6. | a) Explain the Failures in Distributed DBMS.  | 4M  |
|    | b) Explain the Objectives of parallel Data base system architecture.                        | 8M  |
| 7. | a) What are the major characteristics of Object data base Design.                           | 4M  |
|    | b) Define Object query Process and explain query Processing issues.                         | 8M  |
| 8. | a) Write short notes on Types, methods and hierarchies of inheritance.                      | 6M  |
|    | b) Explain the various similarities & Differences between OODBMS & ORDBMS.                  | 6M  |

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**ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET  
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***M.Tech. I Semester Regular/Supplementary Examinations April - 2013***

***Advanced data structures and Algorithms  
( CSE )***

**Max. Marks: 60**

**Time: 03 Hours**

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**Answer any five questions**

**All Questions carry equal marks (12 Marks each)**

1. a) Distinguish between the following terms:
 

Objects and Classes	3M
b) Data Abstraction and Data Encapsulation.	3M
c) Inheritance and Polymorphism.	3M
d) Dynamic Binding and Message passing.	3M
2. a) Define operator overloading 2M
- b) What are the steps involved in the process of overloading 2M
- c) Write a program to implement operator overloading for + and <= 8M
3. Write a program to implement Stack ADT using Template classes. 12M
4. Define Skip List? Explain the operations of Insert, Delete and assigning levels with an example. 2+10M
5. What is an AVL Tree? Explain the operations of Insert and Delete and discuss time complexity. 12M
6. Explain the Divide and Conquer strategy using Merge Sort. 12M
7. Explain Knapsack problem using
 

(a) Greedy Method	
(b) Dynamic Programming	6+6M
8. Explain Travelling Sales Person problem using
 

(a) Dynamic Programming	
(b) Branch and Bound	6+6M

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ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET  
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***M.Tech. I Semester Regular/Supplementary Examinations April - 2013***

***Advanced Software Engineering  
( CSE )***

**Max. Marks: 60**

**Time: 03 Hours**

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**Answer *any five* questions**

**All Questions carry equal marks (12 Marks each)**

1. a) Explain the characteristics of software. 6M  
b) Explain in detail specialized process models. 6M
2. a) Explain the different phases of unified approach. 6M  
b) What are the different types of process models? Explain their framework activities? 6M
3. Explain system dependability, availability and reliability with the help of a simple safety-critical system. 12M
4. Explain the process of component based software engineering? 12M
5. a) What are the characteristics and criteria for test case design and test automation? 6M  
b) Explain the process of system testing. 6M
6. Explain the architecture of service oriented software engineering. 12M
7. Explain the framework of CMMI process. 12M
8. How do you identify soft trends and explain the tools that respond to these trends? 12M

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**ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET  
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**M.Tech. I Semester Regular/Supplementary Examinations April - 2013**

**Foundation of computing  
( CSE )**

Max. Marks: 60

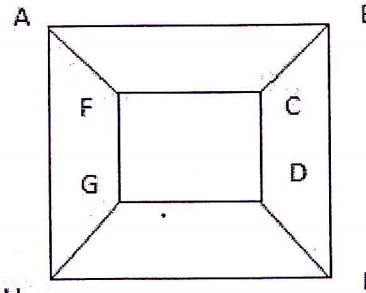
Time: 03 Hours

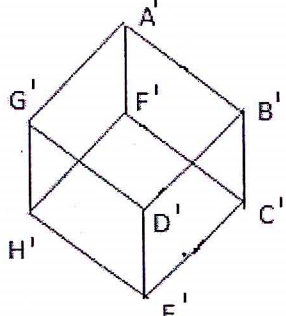
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**Answer any five questions**

**All Questions carry equal marks (12 Marks each)**

1. a) Construct the truth tables for the following formulas:
  - i)  $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R)$  3M
  - ii)  $P \wedge (Q \wedge P)$  3M
- b) Obtain disjunctive normal forms of the following:
  - i)  $P \wedge (P \rightarrow Q)$  3M
  - ii)  $\neg(P \vee Q) \Leftrightarrow (P \wedge Q)$  3M
2. a) Prove that if a relation R on a set A is reflexive and transitive, then  $R^n = R$  for all positive integers n. 6M
- b) Draw the Hasse diagram for the positive divisors of 36. 6M
3. a) Define Isomorphism of graphs. 6M
- b) Show that the following two graphs are isomorphic:
 





6M
4. a) Define NFA? Explain with an example? 6M
- b) Design DFA that accepts the language over the alphabet ,  $S=\{0,1,2\}$  where the decimal equivalent of the language is divisible by 3. 6M
5. a) Construct NFA for the Regular Expression  $((01+10)^*00)^*$  6M
- b) Show that  $L=\{ a^n b^n / n \geq 1 \}$  is not regular. 6M
6. a) When a grammar is said to be in reduced form. 6M
- b) Construct GNF for the below grammar:
 

$$S \rightarrow AB$$

$$A \rightarrow BS/b$$

$$B \rightarrow SA/a$$

6M

7. a) Design Push Down Automata (PDA) for the language  $L = \{ a^n b^n / n \geq 1 \}$  6M  
b) Write the procedure for finding a CFG equivalent to a given PDA 6M
8. Write briefly note on the following:
- a) Linear bounded Automata (LBA) 6M  
b) Chomsky hierarchy of languages 6M

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