B.Tech. Degree VIII Semester Examination, April 2009

CS 801 ADVANCED ARCHITECTURE AND PARALLEL PROCESSING

(1999 Scheme)

Time: 3 Hours Maximum Marks: 100

I	a)	Explain how parallelism was achieved is sequential Machines?	(12)
	b)	What is P-RAM? Explain?	(8)
		OR	
II	a)	Compare shared memory multiprocessors and distributed memory multiple processors?	(14)
	b)	Briefly explain Array processors.	(6)
III		Explain reservation tables and latency analysis in a Non-linear pipeline processors with an example.	(20)
		OR	
IV	a)	Explain different collision free scheduling techniques in pipe lining.	(8)
	b)	Explain different mechanisms for instruction pipelining?	(12)
V		Explain various types of dependencies in parallel programming.	(20)
		OR	
VI	a)	Explain different parallel programming models.	(12)
	b)	Explain different software tools for developing parallel programmes.	(8)
VII		Explain the process model under UNIX.	(20)
		OR	
VIII	a)	What is PVM? Explain with its architecture.	(12)
	b)	Write notes on JAVA threads.	(8)
IX	a)	Explain different parallel algorithms for sorting.	(14)
	b)	How integrity is achieved in Distributed Databases?	(6)
		OR	
X	a)	Describe different goals of Distributed Operating Systems.	(6)
	b)	Write notes on the following: i) Systolic architectures ii) Data flow computing	(14)

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B. Tech Degree VIII Semester Examination, April 2009

CS 802 ARTIFICIAL INTELLIGENCE

(1999 Scheme)

Time : 3 Hours | Maximum Marks : 100

I.	(a)	What is AI? Give three applications where intelligence is required to solve the situation.	(6)
	(b)	Explain the state space approach of problem solving with an example.	(14)
		OR	
II.	(a)	What is the role of control strategy in production system? What are its basic requirements?	(6)
	(b)	Explain hill climbing algorithm. What are the problems associated with hill climbing?	(14)
III.	(a)	Explain the steps for converting a predicate logic statement to clause form.	(10)
	(b)	Convert the following statement to clause form. "All Romans who know Marcus either hate Caesar or think that anyone who hates anyone is crazy".	(10)
		OR	
IV.	(a)	Explain the resolution algorithm used in predicate logic.	(10)
	(b)	Assume the following facts : Steve likes only easy courses Science courses are hard All courses in the computer science department are easy CS 802 is a computer science course. Use resolution to answer the question '*What course would Steve like*?'	(10)
V.	(a)	What are the different steps in natural language understanding?	(10)
	(b)	Differentiate between top down and bottom up parsing with an example.	(10)
		OR	
VI.		Write notes on : (i) Case Grammar (ii) Augmented Transition Network (iii) Transformational Grammar (iv) Context Free Grammar.	(20)
VII.	(a)	Describe the concept of fuzzy logic and its relevance in AI system.	(10)
	(b)	Differentiate procedural and declarative knowledge.	(10)
		OR	
VIII.	(a)	With a neat diagram explain the structure of an expert system.	(14)
	(b)	Explain the difference between statistical and non monotonic reasoning.	(6)
IX.	(a)	Show how neural networks duplicate the operation of human brain.	(10)
	(b)	What is unsupervised learning? Explain.	(10)
		OR	
X.	(a)	Differentiate between supervised and unsupervised learning.	(10)
	(b)	What are perceptrons? Explain multilayer perceptron.	(10)

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B. Tech Degree VIII Semester Examination, April 2009

CS 804 DISTRIBUTED COMPUTING

(1999 Scheme)

Time : 3 Hours Maximum Marks : 100

I. (a) 'A distributed system consists of a collection of autonomous computers linked by a computer network and equipped with distributed system software'. Explain the key characteristics which are responsible for the usefulness of distributed systems. (10)

(b) What are the basic design issues that are related to distributed systems? Explain a shared memory multiprocessor. (10)

OR

II. (a) Explain Client-Server Communication with an example. Discuss the Request-Reply message structure and RPC protocols. (10)

(b) What is a Remote Procedure Call? Explain the software implementation of Remote Procedure Calling. (10)

III. (a) What is Kernel? Explain the key concepts of processes and threads with suitable examples. (10)

(b) Explain Virtual Memory Implementation in distributed systems. (10)

OR

IV. (a) What is a distributed file service? Explain the design issues and various implementation techniques? (10)

(b) What is name space in SNS? Give the different Name service operations in SNS. Explain. (10)

V. (a) What is Co-ordinated Universal Time (UTC) and clock drift? Disçuss a clock synchronization algorithm using a time server? (10)

(b) Differentiate between logical clocks and physical clocks. Explain causal ordering and happened-before relation. (10)

OR

VI. (a) Explain Central Server Algorithm to achieve mutual exclusion. How it differs from a distributed algorithm? (10)

(b) With the help of a diagram, explain basic architectural model for the management of replicated data. Explain the Gossip architecture also. (10)

VII. (a) Discuss the Conversations Operation between a Client and Server. Explain the need for a fault tolerant server. (10)

(b) With suitable examples explain transactions and nested transactions. (10)

OR

VIII. (a) What is a lock? Explain its use in strict two phase locking? What are lock manager functions? (10)

(b) What is a simple distributed transaction? Explain the two phase commit protocol. Discuss the performance of a two phase commit protocol. (10)

IX. (a) Explain durability and failure atomicity aspects of transaction recovery. Explain the different entries in the recovery file. (10)

(b) Discuss the logging technique to organize a recovery file. How this technique differ from a shadow versions organization technique? (10)

OR

X. (a) Explain the different classes of failures with examples. What is Byzantine Generals Problem? (10)

(b) Explain hierarchical and group masking of faults. (10)

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B.Tech. Degree VIII Semester Examination, April 2009

CS 802 DISTRIBUTED COMPUTING

(2002 Scheme)

Time: 3 Hours | Maximum Marks: 100

I	a)	Define distributed system. Give some examples.	(8)
	b)	Explain the following terms i) Openers ii) Concurrency iii) Transparency	(12)
		OR	
II	a)	Explain the features of Remote Procedure call.	(10)
	b)	Write ***Short notes*** on: i) Sun RPC ii) Java RMI	(10)
III	a)	Differentiate between monolithic and micro kernels. Give examples for each.	(10)
	b)	What arte the major communication requirements to be provided in a distributed OS.	(10)
		OR	
IV	a)	Explain the design issues of a distributed file system.	(10)
	b)	Explain the implementation of virtual memory in a distributed system.	(10)
V	a)	Explain the following: i) Clock drift ii) UTC	(5)
	b)	What is Network Time Protocol?	(5)
	c)	Explain logical clocks.	(10)
		OR	
VI	a)	What do you mean by distributed mutual exclusion. Explain Central Server algorithm.	(10)
	b)	Explain with diagram the bully algorithm for election.	(10)
VII	a)	What is time stamp ordering rule? Discuss read and write rules for time stamping.	(10)
	b)	Explain two phase locking.	(10
		OR	
VIII	a)	Explain Distributed Transactions.	(10)
	b)	Explain concurrency control in distributed transactions.	(10)
IX	a)	What do you mean by Intentions list? Where is it used?	(10)
	b)	Describe the various approaches for masking faults.	(10)
		OR	
X	a)	Explain the different types of failures occurring in a distributed system.	(10)
	b)	Describe the various approaches for masking faults.	(10)

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B. Tech Degree VIII Semester Examination, April 2009

CS/IT 803 INTERNETWORKING

(1999 Scheme)

Time : 3 Hours Maximum Marks : 100

I.	(a)	What is the role of TCP/IP in the internet?	(5)
	(b)	Explain the structure of TCP/IP layer. Mention the function of each layer.	(10)
	(c)	What are IP gateways? What is the need of it?	(5)
		OR	
II.	(a)	Describe the structure of TCP/IP software in an operating system.	(10)
	(b)	Explain the architecture of internet. Explain how interconnection through IP gateways occur.	(10)
III.		Explain the conceptual organization of ARP software.	(20)
		OR	
IV.	(a)	Explain ICMP message format and the implementation of ICMP message.	(10)
	(b)	Why buffer management is needed? Explain the common issues in buffer management.	(10)
V.	(a)	With a neat diagram explain a TCP finite state machine.	(10)
	(b)	What is meant by Transmission Control Blocks? How are they allocated?	(10)
		OR	
VI.	(a)	Explain TCP timer management.	(10)
	(b)	Explain the functions of different protocols in transport layer.	(10)
VII.	(a)	Discuss the various issues in client software design.	(10)
	(b)	What do you mean by concurrent processing in client server software?	(10)
		OR	
VIII.	(a)	Explain the major system calls used with sockets.	(10)
	(b)	Describe the communication between client and server using TCP.	(10)
IX.	(a)	Discuss the algorithms in server software design.	(10)
	(b)	Write the RPC implementation.	(10)
		OR	
X.	(a)	Explain the features of concurrent connection oriented servers.	(10)
	(b)	Compare iterative connectionless servers and iterative connection oriented servers.	(10)

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B.Tech. Degree VIII Semester Examination, April 2009

CS 801 SECURITY IN COMPUTING

(2002 Scheme)

Time: 3 Hours Maximum Marks: 100

I	a)	Explain the operation of AES & DES algorithm.	(12)
	b)	What is digital signature? Explain.	(8)
		OR	
II	a)	What are the major vulnerabilities in a computer system?	(12)
	b)	Distinguish among vulnerability, threat & control?	(8)
III		Explain different types of software threats?	(20)
		OR	
IV		What are viruses? Explain various types of viruses?	(20)
V	a)	How can segmentation & paging be used to achieve memory and address protection.	(10)
	b)	What are the different methods by which passwords gets attacked?	(10)
		OR	
VI	a)	What is the role of TCB in Kernalized design of a Trusted Operating System?	(10)
	b)	Explain any 5 security features of a trusted operating system?	(10)
VII	a)	What are the security requirements of a data base system?	(10)
	b)	Discuss the mechanisms to implement 'Separation'	(10)
		OR	
VIII		Discuss about: i) Sensitive data ii) Inference iii) Reliability iv) Integrity	(20)
IX		How can authentication be achieved using Kerberos?	(20)
		OR	
X		What are firewalls? Describe the different types of firewalls and explain the design of firewalls.	(20)

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