Hall Ticket Number :										

R-14

Code: 4G151

III B.Tech. I Semester Regular Examinations November 2016

Computer Networks

(Common to CSE & IT)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70Marks)

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UNIT–I

1. a) Describe the layers of ISO OSI model with neat diagram. 7M
   b) Explain about fibre optic transmission with its advantages and disadvantages. 7M

OR

2. a) Illustrate about computer networks with examples. 7M
   b) Distinguish between multiplexing and switching. 7M

UNIT–II

3. a) Explain in detail about stop and wait protocol. 7M
   b) Discuss about wireless LANs. 7M

OR

4. a) Describe about go back N sliding window protocol. 7M
   b) Explain the structure of IEEE 802.X standard Ethernet. 7M

UNIT–III

5. a) What are different routing algorithms in network layer? Explain about distance vector routing algorithm. 7M
   b) Draw and explain the IPV4 header format. 7M

OR

6. a) Compare broadcasting and multicasting 7M
   b) Define congestion. Explain the leaky bucket algorithm for congestion control. 7M

UNIT–IV

7. a) Explain about transport service primitives. 7M
   b) Describe the TCP header format. 7M

OR

8. a) Compare connection oriented and connection less services in transport layer. 7M
   b) Explain the header format of UDP. 7M

UNIT–V

9. a) Briefly explain about DNS in internet. 7M
   b) Write short notes on World Wide Web. 7M

OR

10. a) Write short notes on Electronic mail. 7M
    b) Explain about FTP and HTTP. 7M

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Hall Ticket Number :										

R-14

Code: 4G451

III B.Tech. I Semester Regular Examinations November 2016

Design and Analysis of Algorithms

(Common to CSE & IT)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70Marks)

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UNIT–I

1. a) Explain the properties of an algorithm with an example. 4M

   b) Explain the set representing using tree and develop algorithms for UNION and FIND using weighing and collapsing rules. 10M

OR

2. a) Define
   - i) Profiling
   - ii) Time Complexity
   - iii) Space Complexity. 9M

   b) Explain about Amortized Analysis 5M

UNIT–II

3. a) Write Divide – And – Conquer recursive Quick sort algorithm and analyze the algorithm for average time complexity. 8M

   b) What is a Minimum Cost Spanning tree? Explain Kruskal's Minimum cost spanning tree algorithm with suitable example. 6M

OR

4. a) Explain Recursive Binary search algorithm with suitable examples. 6M

   b) State the Job – Sequencing with deadlines problem. Find an optimal sequence to the n=5 Jobs where profits (P1,P2,P3,P4,P5) = (20,15,10,5,1) and deadlines (d1,d2,d3,d4,d5) =(2,2,1,3,3). 8M

UNIT–III

5. a) Draw an Optimal Binary Search Tree for n=4 identifiers (a1,a2,a3,a4) = (do, if, read, while) P(1:4)=(3,3,1,1) and Q(0:4)=(2,3,1,1,1). 8M

   b) What is a backtracking? Give the explicit and implicit constraints in 8 queen's problem. 6M

OR

6. a) Explain how Matrix – chain Multiplication problem can be solved using dynamic programming with suitable example. 7M

   b) Explain the Graph – coloring problem. And draw the state space tree for m=3 colors n=4 vertices graph. Discuss the time and space complexity. 7M

UNIT–IV

7. a) What are connected and bi-connected components? Explain with suitable example. 7M

   b) Define the terms Branch and Bound. Explain about its general method 7M

OR

8. a) Write short notes on Graph Traversal Techniques. 7M

   b) Solve 0/1 knapsack problem using Branch and Bound. 7M

UNIT–V

9. State and prove Cook's Theorem 14M

OR

10. Discuss about the complexity of NP-Hard problems. 14M

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Hall Ticket Number :										

Code: 4G452

R-14

III B.Tech. I Semester Regular Examinations November 2016

Web Technologies

(Common to CSE & IT)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Explain Table Attributes with suitable example. 7M
   b) What is a list? Discuss types of lists with example. 7M

OR

2. a) Write a Java script for Registration form email validation 7M
   b) Discuss about form elements and give example for creation of forms. 7M

UNIT–II

3. a) What is XML? Differentiate with HTML. 7M
   b) Define XML Schema. Show how an XML schema can be created 7M

OR

4. a) What is Document Object Model? 7M
   b) Explain Presenting XML. 7M

UNIT–III

5. a) Explain about Java Beans and give its Advantages. 7M
   b) List all the classes and interfaces in JavaBeans API. 7M

OR

6. a) How to handle Http request and Response? 7M
   b) Explain session tacking using cookies. 7M

UNIT–IV

7. a) What is a servlet? Explain life cycle of a servlet. Illustrate with an example program 7M
   b) Explain javax.servelet Package. 7M

OR

8. a) What is a cookie? Give the information that is saved for each cookie on users machine 7M
   b) Explain the components of JSP 7M

UNIT–V

9. a) Explain the data sharing process between JSP's. 7M
   b) Describe implicit JSP objects 7M

OR

10. a) Explain error Handling and debugging methods in JSP. 7M
    b) Explain conditional processing using an expression and set to attributes. 7M

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Hall Ticket Number :										

R-14

Code: 4G152

III B.Tech. I Semester Regular Examinations November 2016

Operating Systems

(Common to CSE & IT)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) What are Virtual Machines? Explain the functions of Virtual Machine. 7M
   b) Discuss generation of Operating Systems. 7M

OR

2. a) Explain Thread Scheduling. 7M
   b) Describe Inter process communication. 7M

UNIT–II

3. a) Explain the Critical Section Problem. 7M
   b) Describe Semaphores. 7M

OR

4. a) What are the characterization of Deadlock? Explain Deadlock Prevention process. 7M
   b) Explain Deadlock detection algorithm. 7M

UNIT–III

5. a) Explain Demand Paging. 7M
   b) Explain Thrashing in UNIX. 7M

OR

6. a) Explain Transforming I/O requests to Hardware Operations. 7M
   b) Explain STREAMS. 7M

UNIT–IV

7. a) Describe file access methods. 7M
   b) Explain free space management. 7M

OR

8. a) Explain Disk Scheduling. 7M
   b) Explain RAID Structure. 7M

UNIT–V

9. a) What is meant by protection? Explain goals and principles of Protection. 7M
   b) Explain Capability based system. 7M

OR

10. a) Explain system and network threats. 7M
    b) Explain Windows Security System. 7M

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Hall Ticket Number :										

Code: 4G357

R-14

III B.Tech. I Semester Regular Examinations November 2016

Microprocessors and Interfacing

(Common to CSE & IT)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) What is the purpose of instruction stream byte queue in 8086? 6M

   b) Describe the importance of segmentation registers. How to calculate physical address? Describe with an example. 8M

OR

2. a) Develop an assembly language program for sorting of even numbers. 10M

   b) Describe the purpose of BHE signal in 8086 µP. 4M

UNIT–II

3. a) Describe 8255 PPI mode-0 operation with an example. 8M

   b) Distinguish SRAM & DRAM 6M

OR

4. a) Interpret I/O mapped and memory mapped I/O techniques in 8086 µP 6M

   b) Explain seven segment display interface with 8086 µP 8M

UNIT–III

5. a) What is DMA? Explain about Master and Slave mode concept. 8M

   b) Discuss about the architectural features of 8257. 6M

OR

6. a) Describe Interrupt service routines. 7M

   b) Interpret Vector interrupt table related to 8086 µP. 7M

UNIT–IV

7. a) How TTL to RS232C and RS232C to TTL conversion is possible? 7M

   b) Distinguish asynchronous and synchronous data transfer schemes. 7M

OR

8. a) Describe the architectural features of 8251 USART. 8M

   b) Distinguish asynchronous and synchronous data transfer schemes. 6M

UNIT–V

9. a) List out the salient features of Pentium pro processors 6M

   b) Explain about paging with an example. 8M

OR

10. a) Distinguish the architectural features of 80286 and 80386 µPs. 7M

    b) List out the features of protected mode segmentation 7M

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Hall Ticket Number :										

Code: 4G153

R-14

III B.Tech. I Semester Regular Examinations November 2016

Compiler Design

(Computer Science and Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. Explain the different phases of a compiler, showing the output of each phase, using the example of the following statement: position: = initial + rate * 60 14M

OR

2. Explain with one example how LEX program perform lexical analysis for the following patterns in 'C': identifier, comments, numerical constants, arithmetic operators. 14M

UNIT–II

3. What is top down parsing? Explain preprocessing steps required for predictive parsing. Apply these steps on the following grammar and construct predictive parsing table.

   $E \rightarrow E+T \mid T$

   $T \rightarrow TF \mid F$

   $F \rightarrow F^* \mid a \mid b$ 14M

OR

4. a) What is left recursion? Remove left recursion from following grammar:

   S → Aa / b

   A → Ac / Sd / e 7M

   b) What are the limitations of recursive descent parser? 7M

UNIT–III

5. a) Define LR(k) parser. Draw and explain model of LR parser. 4M

   b) Construct SLR parsing table for the following grammar.

   E → E+T | T

   T → T*F | F

   F → (E) | id 10M

OR

6. Construct LALR parsing table for the following grammar

   S → CC

   C → cC/d 14M

UNIT–IV

7. Explain symbol table organization using hash tables? With an example show the symbol table organization for block structured language. 14M

OR

8. a) What is an activation record? Compare three different storage allocation strategies. 8M

   b) Write the quadruple, triple, indirect triple for the following expression

   (x + y)*(y + z) + (x + y + z) 6M

UNIT–V

9. Explain loop optimization and peephole optimization techniques with examples. 14M

OR

10. a) Explain various object code forms. 6M

    b) Explain code generation algorithm with an example 8M

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