Hall Ticket Number :										

R-15

Code: 5G452

III B.Tech. I Semester Supplementary Examinations November 2019

Automata and Compiler Design

(Information Technology)

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) Write in brief about Chomsky hierarchy of languages and recognizers.

   b) Construct a DFA for the recognizing the language of all strings over the alphabet {0, 1} and contain the substring 10. Show the acceptance of the string 001011.

OR

2. a) Define a Regular expression. Find regular expressions for the following languages over the alphabet {a, b}.

   i) All strings of odd length

   ii) All strings that end with either ab or bb

   iii) All strings that contain even number of a's

   b) Construct NFA for recognizing the language generated by the regular expression. (a+b)*abb . Check the acceptance of the string abababb.

UNIT–II

3. What do you mean by ambiguity in context free grammars? Give an example for ambiguous grammar. Show that the grammar in your example is ambiguous.

OR

4. Explain the different phases of the compiler, showing the output of each phase using suitable example.

UNIT–III

5. a) Design CLR parser for the following grammar.

   $E \rightarrow E+T,\ E \rightarrow T,\ T \rightarrow T*F,\ T \rightarrow F,\ F \rightarrow (E),\ F \rightarrow id$

   b) Briefly explain the LR parsing algorithm.

OR

6. a) Write about the type checking of overloaded functions and operators

   b) Differentiate dynamic and static type checking.

UNIT–IV

7. a) Explain the syntax directed translation in details?

   b) Different forms of Intermediate code? with example

OR

8. a) Construct Quadruples, Triples and Indirect Triples of the following expression: I = - J * (K + W).

   b) Write about the advantages of intermediate code. Discuss about three address code with examples.

UNIT–V

9. a) Construct quadruples and DAG for the following expression:

   A = B * -C + B * -C

   b) Discuss in brief about register allocation and assignment

OR

10. a) Explain in detail about peephole optimization

    b) What is the use of data flow analysis? Write short notes on data flow analysis of flow graph of basic blocks

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Hall Ticket Number :										

R-15

Code: 5G152

III B.Tech. I Semester Supplementary Examinations November 2019

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 = 70 Marks)

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UNIT–I

1. a) Discuss wireless transmission with its advantages and disadvantages. 7M

   b) Compare FDM and TDM. 7M

OR

2. a) Explain in detail about Network Hardware. How network hardware support the 10M communication of two systems. 7M

   b) Describe the Transmission Media. What are the types of Transmission Media? 7M

UNIT–II

3. a) Explain the following error detection techniques

      i) Checksum ii) Hamming Code 7M

   b) If transmission delay and propagation delay in a sliding window protocol are 1 msec and 49.5 msec respectively, then-

      i. What should be the sender window size to get the maximum efficiency?

      ii. What is the minimum number of bits required in the sequence number field?

      iii. If only 6 bits are reserved for sequence numbers, then what will be the efficiency? 7M

OR

4. a) Discuss Framing Techniques in brief. 7M

   b) List and explain different multiple access protocols in brief. 7M

UNIT–III

5. a) Explain the function of Link state routing protocol with an example. 6M

   b) What are the three main functions of network layer? What is routing? Explain shortest path routing in brief. 8M

OR

6. a) Elaborate on multicast routing protocol. 6M

   b) What is Congestion Control? What are the causes of congestion control? Explain token bucket algorithm in brief. 8M

UNIT–IV

7. a) Explain how TCP manages a byte stream. 7M

   b) Define UDP and discuss the different fields format of a used datagram. List out the uses of UDP protocol. 7M

OR

8. a) What are the elements of Transport layer? Discuss each in brief. 7M

   b) Explain congestion avoidance mechanism using random early detection in transport layer with an example. 7M

UNIT–V

9. a) In DNS, can a single host have (i) multiple host names and (ii) Multiple addresses? How the records are organized in such cases? 7M

   b) What is email privacy? Discuss the email security package PGP with its operation. 7M

OR

10. a) Explain the major DNS resource record types and their meaning. 7M

    b) Explain authoritative and non-authoritative DNS. 7M

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Hall Ticket Number :										

R-15

Code: 5G454

III B.Tech. I Semester Supplementary Examinations November 2019

Data Warehousing and Data Mining

(Information Technology)

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. Why do we need data preprocessing? Elaborate in detail about various steps and techniques used in data preprocessing. 14M

OR

2. a) Explain the different methods for data cleaning. 7M
   b) Explain how Principal Component Analysis (PCA) will reduce the data dimensionality. 7M

UNIT–II

3. a) What are the steps in Association Rule mining? Explain with examples. 7M
   b) Explain the various techniques to improve the efficiency of Apriori based mining. 7M

OR

4. Can we design a method that mines the complete set of frequent itemsets without candidate generation? If yes? Explain with an example. 14M

UNIT–III

5. a) What is Classifier Accuracy? Justify that accuracy is function of sensitivity and specificity. 7M
   b) What is regression? Show how to convert nonlinear regression model into linear regression model. 7M

OR

6. a) Construct and describe about Bayesian belief network for disease prediction. 7M
   b) Demonstrate the fuzzy operations used in classification with example. 7M

UNIT–IV

7. a) List and describe major Categorization of clustering methods used in KDD. 7M
   b) Describe DBSCAN method for clustering the data. 7M

OR

8. a) Elaborate COBWEB algorithm in model based clustering. 7M
   b) What is an outlier? Why Outlier analysis is necessary? Explain any two approaches for outlier detection. 7M

UNIT–V

9. a) Explain about Web usage mining. 7M
   b) Explain about Latent semantic indexing. 7M

OR

10. Explain mining Text databases. 14M

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Hall Ticket Number :										

R-15

Code: 5G356

III B.Tech. I Semester Supplementary Examinations November 2019

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) Explain the concept of segmented memory. What are the advantages? 7M

   b) Write an 8086 ALP to find sum of numbers in the array of 10 elements? 7M

OR

2. a) Draw and explain the read and write cycle timing diagrams of 8086 in maximum mode. 7M

   b) Explain at least 7 assembler directives of 8086 with suitable example. 7M

UNIT–II

3. a) Describe the interfacing of D/A convertor with a neat sketch. 7M

   b) Demonstrate the mode-2 operation used in 8255 PPI in detail 7M

OR

4. a) Describe architecture of 8255 PPI with neat diagram 7M

   b) Differentiate I/O interfacing methods in 8086 microprocessor. 7M

UNIT–III

5. a) Explain hardware and software interrupts in 8086. Demonstrate the interrupt vector table of 8086. 7M

   b) What is the need of DMA? Draw the internal structure of 8257 DMA and explain its operation. 7M

OR

6. a) With neat sketches explain the architecture of 8259A PIC 7M

   b) Explain the various data transfer schemes. Specify the relative merits and demerits of each schemes. 7M

UNIT–IV

7. a) Describe mode instruction control word format in asynchronous and synchronous mode transmission and reception using 8251A 7M

   b) Explain various operating modes of 8253 PIT with suitable diagram. 7M

OR

8. a) Draw the architecture and list out the signal description of 8251A 7M

   b) List out the synchronous and asynchronous data transfer schemes. 7M

UNIT–V

9. a) Discuss the register organisation of 80286 7M

   b) What is paging? Draw the block diagrammatic representation of complete 80386 paging mechanism. 7M

OR

10. Illustrate the salient features of Pentium and Pentium pro processor. 14M

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