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| R-15 |
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Code: 5G152

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Computer Networks

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

UNIT-I

1. What is a network? Explain the differences between Local Area Networks and Wide Area Networks with suitable diagrams.

| Marks | CO | Blooms Level |
|-------|----|--------------|
|-------|----|--------------|

| | | |
|-----|-----|----|
| 14M | CO1 | L2 |
|-----|-----|----|

OR

2. Illustrate the functionality of various layers present in OSI model with a neat sketch

| | | |
|----|-----|----|
| 8M | CO1 | L4 |
|----|-----|----|

UNIT-II

3. a) Summarize Multiple Access Protocols
b) Explain various IEEE 802.X frame formats.

| | | |
|----|-----|----|
| 7M | CO2 | L2 |
| 7M | CO2 | L2 |

OR

4. a) Derive expression of throughput in ALOHA Protocol.
b) A bit stream 10011101 is transmitted using the standard CRC method described in the text. The generator polynomial is x^3+1 . Show the actual bit string transmitted. Demonstrate CRC algorithm in detail.

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| 7M | CO2 | L6 |
| 7M | CO2 | L4 |

UNIT-III

5. a) Distinguish between adaptive and non-adaptive routing algorithms.
b) What is an IP address? Discuss the various IP address classes.

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|----|-----|----|
| 7M | CO3 | L2 |
| 7M | CO3 | L2 |

OR

6. a) Write about Internet protocol and types with their applications.
b) What is datagram network? Compare and contrast of virtual circuit and datagram networks

| | | |
|----|-----|----|
| 7M | CO3 | L2 |
| 7M | CO3 | L3 |

UNIT-IV

7. a) Give detailed description of performance issues in transport layer protocols.
b) Compare TCP and UDP Headers.

| | | |
|----|-----|----|
| 7M | CO4 | L2 |
| 7M | CO4 | L3 |

OR

8. a) What do you understand Tunnel Model and What Protocols fall Under The TCP/IP Internet Layer?
b) Generalize each field of the format of the TCP packet header. Specify the justification for having variable field lengths for the fields in the TCP header.

| | | |
|----|-----|----|
| 7M | CO4 | L4 |
| 7M | CO4 | L4 |

UNIT-V

9. Describe in detail about the following in electronic mail.
i. Message format ii. Message transfer iii. Mail reader

| | | |
|-----|-----|----|
| 14M | CO5 | L2 |
|-----|-----|----|

OR

10. a) State the difference between fully qualified and partially qualified domain name.
b) What is the significance of the Domain Naming System? Write a short note on DNS Name Space

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|----|-----|----|
| 7M | CO5 | L2 |
| 7M | CO5 | L2 |

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| R-15 |
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Code: 5G151

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Compiler Design

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

| | Marks | CO | BL |
|--|-------|----|----|
| UNIT-I | | | |
| 1. a) Explain the different phases of the Compiler, showing the output of each phase using an example for the statement $z = (a*20) + b - c$? | 10M | 1 | 2 |
| b) What is the difference between a pass and phase of a compiler? | 4M | 1 | 3 |
| OR | | | |
| 2. a) Give the reasons for separating Lexical analysis and Syntax analysis into two Phases? | 4M | 1 | 4 |
| b) Define Recursive Descent Parser? Construct Recursive Descent Parser for the following grammar. $S \rightarrow Ab / Ba$ $A \rightarrow Ba / BB / ab$ $B \rightarrow ab / bb / b$ | 10M | 2 | 5 |
| UNIT-II | | | |
| 3. a) Distinguish operator precedence and simple precedence parser? | 7M | 3 | 5 |
| b) List LR(0) items for given grammar $S \rightarrow id(P)$, $P \rightarrow id$, $E \rightarrow id(E) / id$ | 7M | 3 | 1 |
| OR | | | |
| 4. a) Construct the LALR parsing table for the grammar. $S \rightarrow CC$ $C \rightarrow cC \mid d$ | 10M | 3 | 5 |
| b) Explain ways to determine precedence relations between pair of terminals> | 4M | 3 | 2 |
| UNIT-III | | | |
| 5. a) Discuss in detail about the Syntax Directed Definitions? | 7M | 3 | 2 |
| b) Write the algorithm to test structural equivalence of two type expressions s and t? | 7M | 3 | 5 |
| OR | | | |
| 6. a) Explain how an L-attribute grammar can be converted into a translation scheme | 7M | 3 | 1 |
| b) Write Syntax Direct Translation for converting infix expression to post fix form. | 7M | 3 | 5 |
| UNIT-IV | | | |
| 7. Write quadruple, triples and indirect triples for the following expression? $(x+y)*(y+z)+(x+y+z)$ | 14M | 4 | 5 |
| OR | | | |
| 8. a) Discuss about the Heap allocation strategy of runtime environment with an example? | 8M | 4 | 2 |
| b) Compare three different Storage allocation strategies? | 6M | 4 | 5 |
| UNIT-V | | | |
| 9. a) What is a Basic block? With a suitable example explain procedure for identifying basic blocks. | 7M | 5 | 3 |
| b) Explain machine dependent and machine independent optimizations in detail? | 7M | 5 | 2 |
| OR | | | |
| 10. a) With suitable examples, write about Live-variable analysis? | 7M | 5 | 5 |
| b) Discuss the design issues of Code Generator? | 7M | 5 | 2 |
