

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

December 2023 Supplementary Examinations

Programme: B.E.

Branch: Artificial Intelligence and Machine Learning

Course Code: 22AM3PCCNS

Course: Computer Networks

Semester: III

Duration: 3 hrs.

Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

- 1 a) Illustrate the working of TCP/IP layered model. 6
- b) Signify the functionalities of following networking devices: 8
i) Repeaters ii) Bridges iii) Switches iv) Routers
- c) Illustrate any two fundamental ways of measuring network performance with an example. 6

UNIT - II

- 2 a) Apply NRZ, NRI and Manchester encoding schemes for the **data stream: 0 0 1 0 1 1 1 0 1 0 0 0 0 1 0** 10
- b) Illustrate the mechanisms of byte/character stuffing and bit stuffing with an example. 10

OR

- 3 a) Given the data word 1001 and the divisor 1011 10
i. Show the generation of the codeword at the sender site.
ii. Show the checking of the codeword at the receiver site.
- b) Describe the issues of stop and wait protocol and possible solution to tackle the problem. 10

UNIT - III

- 4 a) Is Virtual Circuit switching technique is better than packet switching? technique justify. 10
- b) In what way classful addressing scheme different from classless scheme? Given the CIDR representation 100.1.2.35 / 20, determine the range of IP Addresses for the given CIDR block. 10

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

OR

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|---|---|---|
| 5 | a) Differentiate between circuit switching and packet switching. | 6 |
| | b) What are the advantages of dividing an ethernet LAN with a bridge? Illustrate spanning tree algorithm. | 8 |
| | c) Illustrate BGP protocol working Principle with a network diagram. | 6 |

UNIT - IV

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|---|--|---|
| 6 | a) Illustrate TCP header format with a neat diagram. | 6 |
| | b) Describe solutions to handle Silly Window Syndrome problem | 6 |
| | c) "Slow start mechanism will aid Congestion Control" Justify. | 8 |

UNIT - V

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| 7 | a) Define the terms cryptography, cryptology and cryptanalysis. | 6 |
| | b) Differentiate between symmetric and asymmetric cryptography. Justify "symmetric cryptography is faster than asymmetric cryptography". | 6 |
| | c) Write RSA algorithm. If $p=3$, $q=11$, and $M=2$, perform encryption and decryption using RSA. | 8 |
