**C**

Reg. No. :

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|

### Question Paper Code: 94202

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth Semester

Computer science and Engineering

19UCS402- COMPUTER COMMUNICATION AND NETWORKS

(Regulations 2019)

Duration: Three hours                                       Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1.  Which of the following topology has maximum cabling requirements?          CO1- U

    (a) Mesh topology    (b) Star topology        (c) Bus topology          (d) Ring Topology

2.  Checksums use _____ arithmetic.                                        CO1- U

    (a) one's complement arithmetic          (b) two's complement arithmetic

    (c) either (a) or (b)                     (d) none of the above

3.  The network layer is concerned with _____ of data.                    CO1- U

    (a) bits              (b) frames          (c) packets            (d) bytes

4.  Transport layer aggregates data from different applications into a         CO1- U
    single stream before passing it to _____

    (a) network address                      (b) host address

    (c) both (a) and (b)                      (d) none of the mentioned

5.  The packet of information at the application layer is called               CO1-U
    _____

    (a) Packet            (b) Message          (c) Segment          (d) Frame

PART – B (5 x 3= 15Marks)

6.  Draw a hybrid topology with a ring backbone and three bus networks         CO2- App

7.  Bit stuff the following data                                              CO2- App
    000111111100111110100011111111111111000011111

8.  Differentiate between classfull addressing and classless addressing in IPv4?    CO1- U

| 9. | What is meant by quality of service? What are the two categories of QoS attributes? | CO1- U | |
|---|---|---|---|
| 10. | Draw a working principle of SMTP in Application Layer | CO1- U | |

<div align="center">PART – C (5 x 16= 80Marks)</div>

| 11. | (a) | Draw neat sketch of OSI reference model and list out various functions of the Layers. | CO1-U | (16) |
|---|---|---|---|---|
| | | Or | | |
| | (b) | Discuss the various transmission media that are employed in a network. | CO1-U | (16) |

| 12. | (a) | Suppose we want to transmit the message 11001001 and protect it from errors using the CRC Polynomial X3+1. Use polynomial long division to determine the message that should be transmitted. Corrupt the left-most third bit of the transmitted message and show that the error is detected by the receiver using CRC Technique. | CO2-App | (16) |
|---|---|---|---|---|
| | | Or | | |
| | (b) | Using 5-bit sequence numbers, what is the maximum size of the sender and receiver windows for each of the following protocols? How? <br> (i) stop and wait ARQ <br> (ii) Go –back –N ARQ <br> (iii) Selective Repeat ARQ | CO2-App | (16) |

| 13. | (a) | Explain about IPV4? Compare IPV4 and IPv6 | CO1-U | (16) |
|---|---|---|---|---|
| | | Or | | |
| | (b) | With a neat diagram explain the concept of distance vector routing protocol. | CO1-U | (16) |

| 14. | (a) | Explain the congestion control categories in Transport layer protocols. | CO1- U | (16) |
|---|---|---|---|---|
| | | Or | | |
| | (b) | Explain the characteristics and functionality of transmission control protocol | CO1- U | (16) |

| 15. | (a) | Explain SMTP and HTTP .Give their uses, State strengths and weakness | CO1- U | (16) |
|---|---|---|---|---|
| | | Or | | |
| | (b) | Explain the architecture of WWW | CO1- U | (16) |

**94202**