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Question Paper Code: R4202

B.E. / B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Fourth Semester

Computer Science and Engineering

R21UCS402- COMPUTER NETWORKS

(Regulations R2021)

(Common to IT, CSD & CSE(SC) Engineering branches)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. A link carries data from n connections. In TDM, the data rate of link is _____ time faster and uni-duration is _____ time shorter than a single link connection. CO1-U
(a) n, n (b) $(n+1), (n+1)$ (c) $n, n+1$ (d) $(n+1), n$
2. The _____ Protocol has both flow control and error control. CO1-U
(a) Stop-and-Wait (b) Selective-Repeat ARQ (c) Go-Back-N ARQ (d) both (b) and (c)
3. Which protocol reduces administrative overhead in a switched network by allowing the configuration of a new VLAN to be distributed to all the switches in a domain? CO1-U
(a) STP (b) VTP (c) DHCP (d) ISL
4. The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet? CO1-U
(a) 62 subnets and 262142 hosts (b) 64 subnets and 262142 hosts
(c) 62 subnets and 1022 hosts (d) 64 subnets and 1024 hosts
5. Which of the following is an application layer service? CO1-U
(a) Network virtual terminal (b) File transfer, access, and management
(c) Mail service (d) All of the mentioned

PART – B (5 x 3= 15 Marks)

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| 6. Define protocols with two examples. | CO1-U |
| 7. Define the type of the following destination address:
a. 4A:30:10:21:10:1A b. 47:20:1B:2E:08:EE c. FF:FF:FF:FF:FF:FF | CO2-App |
| 8. What is the difference between IPv4 and IPv6? | CO1-U |
| 9. What are the duties of the transport layer? | CO1-U |
| 10. What is the purpose of Domain Name System? | CO1-U |

PART – C (5 x 16= 80 Marks)

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| 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) Write short notes on CSMA/CD with proper diagram. | CO1-U | (16) |
| Or | | |
| (b) Explain the various types of error. Discuss the various types of detection and correction methods. | CO1-U | (16) |
| 13. (a) Explain the link state routing algorithm with an example. | CO1-U | (16) |
| Or | | |
| (b) Explain about IPV6? Compare IPV4 and IPv6. | CO1-U | (16) |
| 14. (a) What are the various congestion control algorithms? Explain in detail. | CO1-U | (16) |
| Or | | |
| (b) Discuss in detail TCP Header Format, connection establishment and data transmission with the help of suitable diagram. | CO1-U | (16) |
| 15. (a) Define cryptography. Explain the block diagram of symmetric and asymmetric key cryptography | CO1-U | (16) |
| Or | | |
| (b) Explain the concept of FTP in detail. | CO1-U | (16) |