| **Register**  **Number** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**SRM Institute of Science and Technology** 

**College of Engineering and Technology**

**School of Computing**

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamil Nadu

**Academic Year: 2021-22 (Even)**

Test: CLA-T1 Date: 06-04-2022 Course Code & Title: 18CSS202J - Computer Communications Duration: 1 Hour Year & Sem: II Year / IV Sem Max. Marks: 25

**Course Articulation Matrix:**

Set - A

| **S.No.** | **Course**  **Outcome** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | CO1 | 3 | - | - | - | - | - | - | - | - | - | - | 3 |
| 2 | CO2 | 3 | 2 | 3 | - | - | - | - | - | - | - | - | 3 |
| 3 | CO3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 |
| 4 | CO4 | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 |
| 5 | CO5 | 3 | - | - | - | - | - | - | - | - | - | - | 2 |
| 6 | CO6 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 |

| Part - A  (15 x 1 = 15 Marks)  Instructions: 1) Answer ALL questions. 2) The duration for answering the part A is 20 minutes (this sheet will be collected after 20 minutes). 3) Encircle the correct answer (if more than one is right answer encircle appropriately) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Q.  No | Question | Marks | BL | CO | PO | PI  Code |
| 1 | Pick out the elements of protocols  a) Syntax  b) Semantics  c) Timing  d) Formatting  **Answer: a, b, c** | 1 | L1 | 1 | 1 | 1.6.1 |
| 2 | A \_\_\_\_\_\_\_ is the physical path over which a message travels. a) Path  b) Medium  c) Protocol  d) Route  **Answer: b** | 1 | L2 | 1 | 2 | 2.6.3 |
| 3 | Which of these are network edge device?  a) PC  b) Smartphones  c) Servers  d) Switch  **Answer: a, b, c** | 1 | L3 | 1 | 2 | 2.6.3 |
| 4 | A \_\_\_\_\_\_\_\_\_is a set of rules that governs data communication. a) Protocols  b) Standards  c) RFCs  d) Servers  **Answer: a** | 1 | L2 | 1 | 2 | 2.6.3 |

| 5 | Three or more devices share a link in \_\_\_\_\_\_\_\_ connection. a) Uni point  b) Multipoint  c) Point to point  d) Simplex  **Answer: b** | 1 | L3 | 1 | 2 | 1.6.1 |
| --- | --- | --- | --- | --- | --- | --- |
| 6 | Select the TCP/IP layers from the list given below: a) Physical layer  b) Data link layer  c) Application layer  d) Network layer  **Answer: a, b, c, d** | 1 | L2 | 1 | 2 | 2.6.3 |
| 7 | The physical layer is not concerned with \_\_\_\_\_\_\_\_\_\_\_ a) bit-by-bit delivery  b) process to process delivery  c) application to application delivery  d) port to port delivery  **Answer: b, c, d** | 1 | L1 | 1 | 1 | 1.6.1 |
| 8 | The session layer provides \_\_\_\_\_\_\_\_\_\_  a) mechanical specifications of electrical connectors and cables  b) electrical specification of transmission line signal level c) dialog making  d) Session creation  **Answer: c, d** | 1 | L2 | 1 | 2 | 2.6.3 |
| 9 | Which type of topology is not best suited for large businesses which must carefully control and coordinate the operation of distributed branch outlets?  a) Ring  b) Local area  c) Hierarchical  d) Star  **Answer: a, b, c** | 1 | L1 | 2 | 1 | 1.6.1 |
| 10 | In the layer hierarchy as the data packet moves from the upper to the lower layers, headers are \_\_\_\_\_\_\_\_\_\_\_ a) Added  b) Removed  c) Rearranged  d) Modified  **Answer: a** | 1 | L3 | 1 | 1 | 1.6.1 |
| 11 | Tick out the characteristics of Transmission Control Protocol (TCP)  a) Connectionless  b) Unreliable  c) Connection oriented  d) Reliable  **Answer: c, d** | 1 | L2 | 1 | 2 | 2.6.3 |
| 12 | Network layer data is called\_\_\_\_\_\_  a) Segment  b) Datagram  c) Streams  d) Packets  **Answer: c** | 1 | L2 | 1 | 2 | 2.6.3 |
| 13 | Pick out the following transport layer protocols a) Transmission control protocol  b) Transfer control protocol  c) User Datagram protocol  d) Stream Control Transfer Protocol **Answer: a,c, d** | 1 | L1 | 1 | 1 | 1.6.1 |

| 14 | \_\_\_\_\_\_\_ is the reporting protocol  a) ARP  b) RARP  c) IP  d) ICMP  **Answer: d** | 1 | L2 | 1 | 2 | 2.6.3 |
| --- | --- | --- | --- | --- | --- | --- |
| 15 | Store-and-forward network uses \_\_\_\_\_\_\_\_ switching a) Circuit switching  b) Message switching  c) Packet switching  d) Virtual switching  **Answer: c** | 1 | L3 | 1 | 1 | 1.6.1 |

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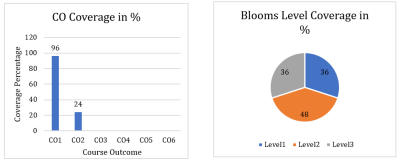
Set - A

| Part – B  (2 x 5 = 10 Marks)  Instructions: Answer ANY two questions | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Q.  No | Question | Marks | BL | CO | PO | PI  Code |
| 16 | Explain the concept of Metropolitan Area Network with suitable topological diagram.    ✓ A metropolitan area network is a network that overs a larger geographic area by interconnecting a different LAN to form a larger network.  ✓ Government agencies use MAN to connect to the citizens and private industries.  ✓ In MAN, various LANs are connected to each other through a telephone exchange line.  ✓ The most widely used protocols in MAN are RS-232, Frame Relay, ATM, ISDN, OC-3, ADSL, etc. It has a higher range than Local Area Network (LAN).  ***Characteristics:***  ✓ It generally covers towns and cities (50 km) | 5 | L2 | 2 | 1 | 1.6.1 |

|  | ✓ Communication medium used for MAN are optical fibers, cables etc.  ✓ Data rates adequate for distributed computing applications.  ***Applications:***  ✓ MAN is used in communication between the banks in a city.  ✓ It can be used in an Airline Reservation.  ✓ It can be used in a college within a city.  ✓ It can also be used for communication in the military. ***Advantages:***  ✓ Extremely efficient and provide fast communication via high-speed carriers, such as fiber optic cables.  ✓ It provides a good back bone for large network and provides greater access to WANs.  ✓ The dual bus used in MAN helps the transmission of data in both directions simultaneously.  ✓ A MAN usually encompasses several blocks of a city or an entire city.  ***Disadvantages:***  ✓ More cable required for a MAN connection from one place to another.  ✓ It is difficult to make the system secure from hackers and industrial espionage (spying) graphical regions |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 17 | State various functions of transport layer and explain each. ***Services provided by the Transport Layer***  ✓ The services provided by the transport layer are similar to those of the data link layer.  ✓ The data link layer provides the services within a single network while the transport layer provides the services across an internetwork made up of many networks.  ✓ The data link layer controls the physical layer while the transport layer controls all the lower layers  **The services provided by the transport layer protocols can be divided into five categories:**  ▪ End-to-end delivery  ▪ Addressing  ▪ Reliable delivery  ▪ Flow control  ▪ Multiplexing    ***End-to-end delivery:***  ✓ The transport layer transmits the entire message to the destination. Therefore, it ensures the end-to-end delivery of an entire message from a source to the destination. ***Reliable delivery:***  ✓ The transport layer provides reliability services by retransmitting the lost and damaged packets. | 5 | L3 | 1 | 2 | 2.6.4 |
| 18 | Classify and write a detail description about various types of transmissions  ***Data Transmission*** | 5 | L1 | 1 | 1 | 1.6.1 |

|  | ✓ It refers to the process of transferring data between two or more digital devices.  ✓ Data is transmitted from one device to another in analog or digital format.  ✓ Basically, data transmission enables devices or components within devices to speak to each other. ✓ There are two methods used to transmit data between digital devices: serial transmission and parallel transmission  ***Serial Transmission***  ✓ When data is sent or received using serial data transmission, the data bits are organized in a specific order, since they can only be sent one after another.  ✓ The order of the data bits is important as it dictates how the transmission is organized when it is received. ✓ It is viewed as a reliable data transmission method because a data bit is only sent if the previous data bit has already been received.  ***Parallel Transmission***  ✓ Given that multiple bits are sent over multiple channels at the same time, the order in which a bit string is received can depend on various conditions, such as proximity to the data source, user location, and bandwidth availability.  ✓ Two examples of parallel interfaces can be seen below. In the first parallel interface, the data is sent and received in the correct order.  ✓ In the second parallel interface, the data is sent in the correct order, but some bits were received faster than others. |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |

**Course Outcome (CO) and Bloom’s level (BL) Coverage in Questions**

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