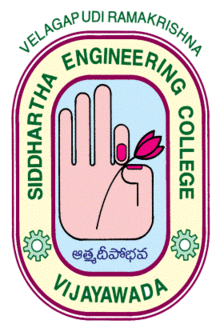
V.R.Siddhartha Engineering College

Department of IT

A.Y:2022-23

****   

**20IT5301: COMPUTER NETWORKS HOME ASSIGNMENT-2 QUESTIONS**

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Question | CO | BTL |
| 1. | A bit string 0111101111101111110 needs to be transmitted at the data link layer.   1. What is the string actually transmitted after bit stuffing. 2. What is the string received after de stuffing. | CO2 | Apply |
| 2. | Calculate checksum obtained by dividing the message **M(X) = x7+x5+1** by the generator polynomial **P(X)= x3+1 Using CRC.** | CO2 | Apply |
| 3. | The bit stream **10011001** is transmitted using CRC method and the generator polynomial is **1001**. Check whether the error is detected at the receiver’s end or not. | CO2 | Apply |
| 4. | The data fragment occurs in the middle of data stream A B ESC C ESC FLAG FLAG D . Apply byte stuffing algorithm at the data link layer | CO2 | Apply |
| 5. | Generate hamming code for a 16 bit message 1101001100110101 is transmitted. Assume that even parity is used for encoding the message. | CO2 | Apply |
| 6. | Find path through a network from a given source to a given destination Using distance vector routing algorithm. Assume the routers are considered reliable, so it is not necessary to worry about the possibility of router crashes.  Source node: **0**  Destination node: **8**  Fig-11.jpg (714×333) | CO4 | Evaluate |
| 7. | Find the new routing table at **“c”** using Distance Vector Routing Algorthim for the following graph.  http://upload.wikimedia.org/wikipedia/commons/thumb/3/3b/Shortest_path_with_direct_weights.svg/512px-Shortest_path_with_direct_weights.svg.png | CO4 | Evaluate |
| 8. | Consider the following subnet, discover its neighbours and measure the delay or cost to each of its neighbours using link state routing | CO4 | Evaluate |
| 9. | A five 4-bit numbers are (7,11,12,0,6) transmitted to the destination using checksum algorithm. Find the actual values sent to destination. | CO2 | Apply |
| 10. | There is a network consisting of 4 routers. The weights are mentioned on the edges. Construct routing table for each node in the network. | CO4 | Evaluate |
| 11. | Find the optimal path from node A to node C for the above network. | CO4 | Evaluate |
| 12. | A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x4+x+1. What is the actual bit string transmitted? | CO2 | Apply |
| 13. | A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x3+1.   1. What is the actual bit string transmitted? 2. Suppose the third bit from the left is inverted during transmission. How will receiver detect this error? | CO2 | Apply |
| 14. | Calculate the checksum value of 1001001110010011 and 1001100001001101 of 16 bit segment. | CO2 | Apply |
| 15. | Consider the 7-bit generator, G=10011, and suppose that D has the value 1010101010. What is the value of R? | CO2 | Apply |
| 16. | Consider the previous problem, but suppose that D has the value  a. 1001010101  b. 0101101010  c. 1010100000 | CO2 | Apply |
| 17. | Assume that data is 10110 & code generator is 1101 calculate the Checksum value | CO2 | Apply |
| 18. |  | CO2 | Apply |
| 19. | Compute least-cost paths to all nodes from node u using Link state algorithm. | CO4 | Evaluate |
| 20. | Compute least-cost paths to all nodes from nod “t” using link state | CO4 | Evaluate |
| 21. | Construct forwarding tables for ech router in the network using Distance Vector routing algorithm. | CO4 | Evaluate |
| 22. | Construct forwarding tables for each router in the network using Distance Vector routing algorithm. | CO4 | Evaluate |
| 23. | In the below figure, each cloud represents the network, and the number inside the cloud represents the network ID, All the LANs are connected by routers, and they are represented in boxes labeled as A, B, C, D, E, F. By using Distance vector routing algorithm simplify the routing process by assuming the cost of every link is one unit. Therefore, the efficiency of transmission can be measured by the number of links to reach the destination. | CO4 | Evaluate |
| 24. | For the following network an empty routing tree generated by Dijkstra's algorithm for node A (to every other node) is shown below. Fill in the missing nodes and indicate the order that each node was added and its associated cost. For reference, node C's completed routing tree is shown as well.  http://web.mit.edu/6.02/www/f2012/handouts/tutprobs/routing_4.png | CO4 | Evaluate |

Solve the problems as per the following :

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Regd  No | Question No | Regd No | Question No | Regd No | Question No | Regd No | Question No | Regd No | Question No |
| 266 | 1 | 280 | 15 | 294 | 5 | 2A9 | 19 | 2C3 | 9 |
| 267 | 2 | 281 | 16 | 295 | 6 | 2B0 | 20 | 2C4 | 10 |
| 268 | 3 | 282 | 17 | 296 | 7 | 2B1 | 21 | 2C5 | 11 |
| 269 | 4 | 283 | 18 | 297 | 8 | 2B2 | 22 | 2C6 | 12 |
| 270 | 5 | 284 | 19 | 298 | 9 | 2B3 | 23 | 2C7 | 13 |
| 271 | 6 | 285 | 20 | 299 | 10 | 2B4 | 24 | 2C8 | 14 |
| 272 | 7 | 286 | 21 | 2A0 | 11 | 2B5 | 1 | Le-7 | 15 |
| 273 | 8 | 287 | 22 | 2A1 | 12 | 2B6 | 2 | Le-8 | 16 |
| 274 | 9 | 288 | 23 | 2A2 | 13 | 2B7 | 3 | Le-9 | 17 |
| 275 | 10 | 289 | 24 | 2A3 | 14 | 2B8 | 4 | Le-10 | 18 |
| 276 | 11 | 290 | 1 | 2A4 | 15 | 2B9 | 5 | Le-11 | 19 |
| 277 | 12 | 291 | 2 | 2A5 | 16 | 2C0 | 6 | Le-12 | 20 |
| 278 | 13 | 292 | 3 | 2A6 | 17 | 2C1 | 7 |  |  |
| 279 | 14 | 293 | 4 | 2A8 | 18 | 2C2 | 8 |  |  |