**Charotar University of Science and Technology  
Devang Patel Institute of Advance Technology and Research**

**Department of Computer Science & Engineering**

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| **Subject: Computer Networks** | **Semester: 5** |
| **Subject Code: CS352** | **Academic Year: 2021-22** |

**Course Outcomes (COs):**

After completion of the course students will be able to:

1. Analyse layered network architecture and passage of data over communication links
2. Analyse delay models in Data Networks using Queueing Systems for messaging and delay sensitive applications
3. Design and analyse routing algorithms for Internet and multi-hop autonomous networks
4. Analyse flow and rate control algorithms between a sender and receiver in wide area networks
5. Apply the network fundamentals to analyse performance
6. Use key networking algorithms in simulation

**Practical List**

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| **Sr. No.** | **AIM** | **Hrs** | **COs** |
| 1 | Demonstrate the simple network configuration with a router that connects two local area network (LAN) segments using cisco packet tracer. | **2** | **1** |
| 2 | An organization works on IT projects. It has mainly 3 departments i.e. php, .net and android. CEO of that organization wants to configure a single network but virtually divided into 3 department in such a way that the packets can travel or broadcasted within the same department only. Demonstrate the configuration of such network in cisco packet tracer. | **2** | **1, 5** |
| 3 | An organization is having 3 braches at 3 different locations. The founder of organization wants to configure the WAN connection amongst all the branches for better communication, file sharing and resource sharing. Demonstrate the static routing configuration for the given scenario using cisco packet tracer. | **2** | **1, 3** |
| 4 | An organization is having 3 braches at 3 different locations. The founder of organization wants to configure the WAN connection amongst all the branches for better communication, file sharing and resource sharing. Demonstrate the dynamic routing configuration using RIP protocol for the given scenario using cisco packet tracer. | **2** | **1, 3** |
| 5 | An organization is having 3 braches at 3 different locations. The founder of organization wants to configure the WAN connection amongst all the branches for better communication, file sharing and resource sharing. Demonstrate the dynamic routing configuration using OSPF protocol for the given scenario using cisco packet tracer. | **2** | **1, 3** |
| 6 | Demonstrate the static and dynamic configuration of NAT using cisco packet tracer | **2** | **5, 6** |
| 7 | Four different departments (N0, N1, N2, and N3) of an Industry are connected in star topology to create a wired network. The link which is used is a duplex link with the queue size 5. The other parameters of link are listed below.   |  |  |  |  | | --- | --- | --- | --- | | Link | Bandwidth | Delay | Queue Type | | no-n2 | 10Mbps | 10ms | DropTail | | n1-n2 | 10Mbps | 10ms | DropTail | | n2-n3 | 5Mbps | 10ms | DropTail |   Design simple tcl script in NS-2 for transferring FTP traffic having following characteristics.   * Packet Size: 1000 * Rate: 1 * Interval: 150   Also demonstrate various queuing mechanisms and make comparative analysis of various queuing techniques. (using trace file) (DropTail, RED, SFQ and FQ) | **2** | **2, 4** |
| 8 | Design simple tcl script for transferring FTP & CBR traffic in Wireless topology of 6 nodes using NS-2    **ftp0:- (Both node with ftp)**  Packet Size: 1000  Rate: 1  Interval: 150  **cbr0:- (Both node with cbr)**  Packet Size: 1500  Rate: 0.05  Interval: 150  Demonstrate the use of AWK script with NS2 trace file and Find Out Throughput, Packet delivery ratio, and Number of Drop Packets. | **2** | **2, 4, 5** |
| 9 | Create ring and mesh topology in NS2 and implement distance vector algorithm for dynamic routing. Analyze the behavior for transferring the packet when a link goes down. | **2** | **2, 4, 5** |
| 10 | Demonstrate wired communication between peer computer using Omnet++ | **2** | **1** |
| 11 | Demonstrate wireless communication between peer computer using Omnet++ | **2** | **1** |

**Prepared By:**

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