Enrolment No. 002

NATIONAL FORENSIC SCIENCES UNIVERSITY, DELHI CAMPUS

B. Tech. – M. Tech. Computer Science and Engineering (Cyber Security)

Semester- V Term Assessment – 01

September, 2023

Subject Code: CTMTCSE SV P1 **Date:**

Subject Name: Advance Computer Networks

Time: 45 minutes **Total Marks: 25**

Instructions:

1. All questions are compulsory.
2. Number in bracket at the right represents marks.

---

1. Differentiate between
   a. Virtual Circuits vs Datagram Circuits (5)
   b. Multicast vs Unicast vs Broadcast (5)
2. State and explain different types of routing protocols? (5)
3. Write down the steps involved in configuration of OSPF using cisco packet tracer. (5)
4. Which layer of OSI is responsible for the congestion control? Explain different types of congestion control algorithm with example. (5)

---- End of Paper ----

NATIONAL FORENSIC SCIENCES UNIVERSITY, DELHI CAMPUS
B. Tech. – M. Tech. Computer Science and Engineering (Cyber Security)
Semester- V (Practical Exam)

Subject Code:	**CTMTCSE SV P1**	**Date: 09/01/2024**
Subject Name:	**Advance Computer Networks**	
Time:	**01:30 hr**	**Total Marks: 50**

Q.1 Design and implement OSPF in Cisco Packet Tracer.
Q.2 Write down the commands to configure switch and router in cisco packet tracer.
Q.3 What are the steps to assign IP address to the computer and server in cisco packet tracer.
Q.4 Execute and Write down the command to use Ping and Traceroute to Test Network Connectivity.
Q.5

a) **Difference between User mode and Privileged mode in Cisco?**
b) **What is EIGRP? Mention some metrics of the EIGRP Protocol.**
c) **Why is RIP known as Distance Vector?**
d) **What is Route Redistribution in computer networks?**

Enrolment No. 002

NATIONAL FORENSIC SCIENCES UNIVERSITY, DELHI CAMPUS

B. Tech. – M. Tech. Computer Science and Engineering (Cyber Security) Semester- V

Block Examination (December, 2023)

Subject Code: **CTMTCSE SV P1** Date: 11/12/2023

Subject Name: **Advance Computer Networks**

Time: 90 minutes **Total Marks: 50**

Instructions:

1. Attempt all the questions.
2. Each question carries 10 marks.

Q.1 Explain transport layer of OSI Model

Q.2 Write down the steps involved in configuration of RIP using cisco packet tracer.

Q.3 Explain various functions and protocols of Application Layer in OSI Model.

Q.4 Differentiate between

i) DNS and DHCP
ii) Static and Dynamic Routing

Q.5 What is E-Mail? Explain with the architecture of E-Mail.

----- End of Paper -----

Seat No.: _____ Enrolment No. 033

NATIONAL FORENSIC SCIENCES UNIVERSITY

B. Tech. – M. Tech. Computer Science and Engineering (Cyber Security)
Semester – V – January - 2024

Subject Code: CTBTCSE SV P1 **Date:** 01/01/2024
Subject Name: Advance Computer Networks
Time: 11:00 AM to 2:00 PM **Total Marks:** 100

Instructions:

1. **Write down each question on separate page.**
2. **Attempt all questions.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

		Marks
Q.1	**Answer the following (Attempt Any Three)**	
(a)	Consider a network with an IP address of 192.168.1.0/24. You are required to subnet this network into smaller subnets to accommodate at least 60 hosts per subnet. i) Determine the number of bits needed for host addresses in the new subnet. ii) Calculate the subnet mask for the new subnets. iii) Calculate the number of subnets created and their respective ranges. iv) Verify the validity of the calculation by providing an example IP address and subnet within the newly created subnets.	**08**
(b)	Differentiate - Virtual Circuits vs Datagram Circuits	**08**
(c)	Consider a network with the following table showcasing the distance vector routing information: Assume that the distance vector routing algorithm is utilized, and node A receives an update from node C with the following vector: [4, 3, 0, 2]. a) Using the Bellman-Ford algorithm or a similar technique, calculate the updated routing table for node A after receiving this vector. b) Determine if there are any changes in the shortest paths for destinations B, C, and D from node A after incorporating the received vector update. Please perform the calculations and update the routing table for node A along with any modifications in the shortest paths for destinations B, C, and D.	**08**

Destination	A	B	C	D
A	0	2	5	1
B	2	0	3	5
C	5	3	0	2
D	1	5	2	0

(d) What are routing Algorithms? Explain any 2 routing algorithms with examples. **08**

Q.2 **Answer the following (Attempt Any Three)**

(a) Discuss the key characteristics of TCP's congestion control mechanisms and contrast TCP and UDP in managing network congestion. Also discuss the Congestion Control Algorithm with examples. **08**

(b) i) Define a MAC address and describe its role in data transmission within a local network. How does a MAC address differ from an IP address? **08**

ii) Explain the difference between IPv4 and IPv6 addresses, highlighting the reasons behind the transition from IPv4 to IPv6.

(c) State and explain the multiplexing and Demultiplexing Techniques. **08**

(d) Differentiate between TCP & UDP. **08**

Q.3 **Answer the following (Attempt Any Three)**

(a) You are hired as an Intern at ABC Pvt Ltd where you are asked to explain DNS & its working. Kindly justify your explanation with appropriate diagram. **08**

(b) Define the following terms with examples: **08**

i) Unicasting

ii) Broadcasting

iii) Multicasting

iv) Message Confidentiality

v) Message Integrity

vi) Message Authentication

vii) Message Non Repudiation

(c) Answer the following **08**

i) Service Running on Port No. 25 - _____

ii) Service Running on Port No. 8080 - _____

iii) Which port does the HTTP services run on? _____

iv) Which port does the DNS services run on? _____

v) Which port does the Telnet Services Run on? _____

vi) Service Running on Port No. 22 - _____

vii) Service Running on Port No. 143 - _____

viii) Service Running on Port No. 161 - _____

(d) What is E-Mail? Explain generic architecture of E-Mail with suitable diagram. **08**

Q.4 **Answer the following (Attempt Any Two)**

(a) Define Firewall. State the types of Firewall and its need. **07**

(b) i) Define DHCP and explain its process. **07**

ii) What is WWW?

(c) What is a digital signature? What are the advantages & disadvantages of public key encryption? **07**

Q.5 **Answer the following (Attempt Any Two)**

(a) Differentiate IDS v/s IPS with examples. Also state the need of IDS & IPS in securing the network. Use suitable diagrams wherever necessary. **07**

(b) i) What is Nmap? **07**

ii) Write the Nmap commands for the following tasks:

i) To Scan an Individual Target

ii) To Scan a range of IP Addresses

iii) To Scan/Detect An Operating System

(c) Write a netcat program with example to create a **07**

i) BindShell

ii) Chat Application

--- End of Paper---