1212N959 Candidate's Seat No :_____

IMSc in CSF (NEP) Sem-3 Examination
ICSF-201
Fundamental of Computer Network

Time : 2-30 Hours] December-2024 [Max. Marks : 70

Question 1 Answer the following questions:
i.	Define computer network and the internet. Highlight how networks enable communication and data sharing.	7Marks
ii.	Differentiate between OSI and TCP Model.	7Marks

OR

i.	Explain Physical components: switches, routers, servers, cables. Discuss their role in data transmission.	7Marks
ii.	Explain any five Topologies in network. Also explain different types of Network.	7Marks

Question 2 Answer the following questions:
i.	Differentiate between HTTP and HTTPS. Discuss their applications.	7Marks
ii.	Explain the working of the Domain Name System (DNS) and its hierarchical structure.	7Marks

OR

i.	Explain the working of the File Transfer Protocol (FTP) with its modes of operation.	7Marks
ii.	Explain the role of SMTP in email transmission and its working mechanism.	7Marks

Question 3 Answer the following questions:
i.	Explain the key services provided by the transport layer and discuss their importance in network communication.	7Marks
ii.	Explain the differences TCP and UDP, with examples.	7Marks

OR

i.	Compare IPv4 and IPv6, highlighting the improvements made in IPv6 over IPv4 for the network layer.	7Marks
ii.	What is internetworking? Explain its importance and the challenges involved in connecting different networks.	7Marks

Questions 4 Answer the following questions:
i.	Explain the design issues of the Data Link Layer in computer networks. Highlight the key challenges faced and how they are addressed.	7Marks
ii.	What is a sliding window protocol? Explain its operation with the help of diagrams and describe its advantages over the stop-and-wait protocol.	7Marks

OR

i.	Discuss the role of the Data Link Layer in the Internet. Explain how it interacts with other layers to ensure reliable communication.	7Marks
ii.	Explain the architecture and working of a Wireless LAN. Discuss its key features and challenges.	7Marks

P.T.O

Questions 5: Attempt any Seven out of Ten. 14 Marks

1. What layer in the OSI or TCP/IP model is responsible for user applications like web browsers and email clients?

   a) Physical Layer   b) Data Link Layer
   c) Network Layer   d) Application Layer

2. Which protocol is used for logging into remote computers over a network?

3. What protocol is used for transferring files between computers on a network?

4. What service translates domain names (e.g., [invalid URL removed]) into IP addresses?
   a) World Wide Web   b) Domain Name System (DNS)
   c) Email   d) File Transfer Protocol (FTP)

5. What type of network connects devices within a small geographic area, like a home or office?

6. In which network topology are all devices connected to a central hub?

7. What organization promotes open standards for network communication?

8. Which network hardware device connects devices on a network segment?

9. What is an example of a network application?

   a) Web browser   b) Operating system

   c) Word processor   d) Video game (single player)

10 What connects individual devices and allows them to share resources?

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