CS & IT ENGINEERING

COMPUTER NETWORKS

IPv4 Addressing

Lecture No-01

By- Ankit Doyla Sir

Introduction to **the Course**

Computer Networks GATE Syllabus

IPv4 Addressing * (2m)

1. Introduction to IP Addressing
2. Classful Addressing
3. Types of communication
4. *Subnetting [Cat 1 - Cat 10]
5. Classless Addressing
6. Subnetting in CIDR
7. Supernetting
8. Supernetting in CIDR

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Error Control (*)

1. Simple Parity
2. 2D Parity
3. Checksum
4. * CRC
5. Hamming Code

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Flow control at Data link layer *

1. Delay in Computer Network
2. Stop & wait
3. Go Back –N (GB-N)
4. Selective Repeat (SR)

} 2m

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Internet Protocol Version 4(IPv4) *

1. IPv4 Header
2. Fragmentation in IPv4

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Transport Layer Protocol (TCP) (30Hrs)

1. TCP Header
2. Wrap Around Time (२०२२, २०२३)
3. Connection Establishment Phase
4. Data Transfer Phase
5. Connection Termination Phase
6. TCP state transition diagram
7. Flags in TCP
8. Flow control in TCP
9. Error Control in TCP
10. TCP timer management
11. Congestion control in TCP *
12. Traffic Shaping

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User Datagram Protocol (UDP)

1. UDP Header
2. Why we need UDP
3. TCP vs UDP

2 Hrs

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Media Access Control (*)

1. ALOHA *
2. CSMA
3. CSMA/CD *
4. CSMA/CA
5. Reservation
6. Polling
7. Token passing
8. FDMA *
9. TDMA
10. CDMA

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Routing Protocol (*)

1. Shortest Path
2. Flooding
3. Distance vector Routing *
4. Link State Routing

1-2 Marks

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Switching (*)

1. Circuit Switching
2. Packet Switching *
3. Virtual Circuit Switching
4. Datagram Switching

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Application Layer Protocol

1. DNS
2. SMTP
3. FTP
4. HTTP
5. Email

1 - 2 Marks

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Basics of IP Support Protocol (*)

1. ARP
2. RARP
3. DHCP
4. ICMP

} 1 Mark

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OSI and TCP/IP Protocol Stack (*)

1. OSI Model
2. Functions of OSI Layers
3. TCP/IP Model

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Miscellaneous

1. Network Address Translation(NAT)
2. Ethernet Bridging

Books

1. Behrouz A. Forouzan *
2. Andrew S. Tanenbaum
3. Kurose and Ross (DNS + HTTP)

Gate 2023 → 8 marks

① IP Addressing (2m)

② Flow control (stop & wait) → 1m

③ Routing Algorithm (1m) [DVR / LSR]

④ WAT (2m)

⑤ Application Layer Protocol) 2m
DNs + HTTP

Gate → 2022 → 11 Marks

Computer Network → Gate 2024
(10-12 marks)

Thank you DOSTO