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Third Year Computer Networks Question Paper

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SECTION 1: DESCRIPTIVE (10 Questions, 1 Marks each)

Bloom's Taxonomy Level: 2

Topic: Application Layer

Subtopic: FTP

Q1: Briefly explain the difference between active and passive FTP in terms of how data connections are established. (1 Marks)

Q2: Describe the two main ports FTP uses and their respective functions in the file transfer process. (1 Marks)

Q3: Briefly explain how FTP handles file transfer security, considering its inherent limitations in this area. (1 Marks)

Subtopic: BitTorrent Protocol

Q4: Briefly explain the role of trackers in the BitTorrent protocol. (1 Marks)

Q5: Describe the process of "choking" and "unchoking" peers in a BitTorrent swarm. (1 Marks)

Topic: Transport Layer

Subtopic: Congestion Control

Q6: Briefly explain how the "slow start" phase of TCP congestion control works to increase the transmission rate. (1 Marks)

Q7: Describe the primary difference between the additive increase and multiplicative decrease mechanisms used in TCP congestion control. (1 Marks)

Q8: In the context of TCP congestion control, briefly explain what the "congestion window" represents and its role in regulating data flow. (1 Marks)

Subtopic: GoBackN and Selective Repeat

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SECTION 2: TRUE OR FALSE (10 Questions, 1 Marks each)

Topic: Application Layer

Subtopic: FTP

Q9: True or False: FTP uses two separate TCP connections, one for control information (commands) and one for data transfer. (1 Marks)

Q10: True or False: In passive mode FTP, the client initiates both the control and data connections to the server. (1 Marks)

Q11: True or False: FTP provides mechanisms for file and directory management operations, such as creating, deleting, and renaming files and directories. (1 Marks)

Subtopic: BitTorrent Protocol

Q12: ****True or False:**** In the BitTorrent protocol, a peer that has downloaded a complete file and continues to upload pieces to other peers is called a seeder. (1 mark) (1 Marks)

Q13: ****True or False:**** The BitTorrent protocol relies on a central server to track the availability of file pieces and coordinate the connections between peers. (1 mark) (1 Marks)

Topic: Transport Layer

Subtopic: Congestion Control

Q14: ****True or False:**** Slow start, a congestion control mechanism in TCP, exponentially increases the congestion window size until a packet loss occurs or the slow start threshold is reached. (1 Marks)

Q15: ****True or False:**** Fast recovery, a part of TCP congestion control, immediately sets the congestion window size to half of its previous value upon detecting three duplicate acknowledgements. (1 Marks)

Q16: ****True or False:**** Congestion control aims to prevent network performance degradation due to overload by regulating the rate at which data is sent by the sender. (1 Marks)

Subtopic: GoBackN and Selective Repeat

Q17: ****True or False:**** In Go-Back-N, if a timeout occurs for a packet, only the timed-out packet is retransmitted. (1 Marks)

Q18: ****True or False:**** Selective Repeat requires a larger receiver window size compared to Go-Back-N for the same level of performance. (1 Marks)