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Third Year Computer Networks Question Paper

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SECTION 1: MULTIPLE CHOICE QUESTION (9 Questions, 1 Marks each)

Bloom's Taxonomy Level: 1

Topic: Application Layer

Subtopic: BitTorrent Protocol

Q1: Which of the following is NOT a core component of the BitTorrent protocol? (1 Marks)

Q2: In the BitTorrent protocol, what is the primary role of a tracker? (1 Marks)

Q3: Which of the following is NOT a key component of the BitTorrent protocol? (1 Marks)

Subtopic: FTP

Q4: **Question 1 (1 mark):** (1 Marks)

Q5: Which of the following ports is commonly used by FTP's control connection? (1 Marks)

Topic: Transport Layer

Subtopic: Flow Control

Q6: In TCP flow control, what mechanism prevents a fast sender from overwhelming a slow receiver?

a) Sliding Window
b) Go-Back-N ARQ
c) Stop-and-Wait ARQ
d) Congestion Control (1 Marks)

Q7: Which of the following is NOT a primary goal of flow control in the transport layer?

a) Prevent buffer overflow at the receiver.
b) Maximize throughput.
c) Ensure reliable data transmission.
d) Prevent data loss at the sender. (1 Marks)

Q8: The size of the sliding window in TCP flow control is determined by:

a) The sender's available buffer space only.

b) The receiver's available buffer space only.

c) The network's bandwidth.

d) Both the sender's and receiver's available buffer space. (1 Marks)

Subtopic: GoBackN and Selective Repeat

Q9: **Question 2 (1 mark):**

Which of the following statements is TRUE regarding Selective Repeat ARQ compared to Go-Back-N ARQ

(a) Selective Repeat always requires more buffer space at the receiver.

(b) Go-Back-N is more efficient in high-error rate environments.

(c) Selective Repeat retransmits only the lost or damaged packets.

(d) Both protocols have the same window size limitations. (1 Marks)

SECTION 2: DESCRIPTIVE (5 Questions, 2 Marks each)

Bloom's Taxonomy Level: 2

Topic: Application Layer

Subtopic: BitTorrent Protocol

Q10: **Describe two key mechanisms employed by the BitTorrent protocol to improve download speeds compared to traditional client-server download methods. Explain how each mechanism contributes to enhanced efficiency.** (2 marks) (2 Marks)

Q11: **Explain the roles of "peers" and "trackers" within the BitTorrent protocol. How do these components interact to facilitate the distribution and download of files?** (2 marks) (2 Marks)

Subtopic: FTP

Q12: Describe two key differences between FTP's active and passive modes, explaining how these differences affect the network communication involved in transferring a file. (2 Marks)

Topic: Transport Layer

Subtopic: Flow Control

Q13: Describe two common flow control mechanisms used at the transport layer, briefly explaining how each prevents a fast sender from overwhelming a slow receiver. (2 Marks)

Subtopic: GoBackN and Selective Repeat

Q14: Describe the key difference in how Go-Back-N ARQ and Selective Repeat ARQ handle the

acknowledgement of received packets and the retransmission of lost or corrupted packets. Illustrate your answer with a simple example showing how each protocol would react to the loss of a single packet. (2 Marks)