

## RAT Test Run

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**Question 1:** What is a primary purpose of a Content Delivery Network (CDN)?

- A Eliminate the need for HTTP
- B Reduce latency by serving content from servers closer to users
- C Encrypt web traffic end-to-end
- D Replace TCP with UDP for faster downloads

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**Question 2:** The Dynamic Adaptive Streaming over HTTP (DASH) protocol allows:

- A the network to select chunks of a video file at different bitrates
- B the server to select chunks of a video file at different bitrates.
- C the user to select chunks of a video file at different bitrates.
- D the client to select chunks of a video file at different bitrates.

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**Question 3:** In a Content Distribution Network (CDN), the best Cluster Selection strategy is:

- A always to select the geographically closest cluster, based on the client's IP address.
- B to perform real-time measurements between clusters and clients.
- C always to select the geographically closest cluster, based on the client's local DNS server (LDNS) IP address.
- D to use DASH with different bitrate versions of the video file.

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**Question 4:** Socket programming:

- A allows implementing both client-server and P2P systems in the transport layer.
- B allows implementing both client-server and P2P systems.
- C only allows implementing client-server systems.
- D only allows implementing P2P systems.

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**Question 5:** Creating a server application using UDP sockets requires:

- A a connection socket for receiving data and a server socket for sending data.
- B a connection socket per used connection, for both sending and receiving data.
- C a server socket bound to a given port.
- D a server socket bound to a given port for each received connection.

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**Question 6:** In a server application using TCP sockets:

- A there are  $n + 1$  sockets for  $n$  connected clients.
- B there are  $n$  sockets for  $n$  connected clients.
- C there are always 2 sockets, one for sending and another for receiving.
- D there is always only 1 socket, the server socket.

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**Question 7:** In a client application using TCP sockets:

- A a single client socket is needed to connect to the server.
- B a client socket needs to be bound to a port before the TCP connection setup.
- C a single client socket is needed to connect to a local port.
- D a client socket needs to first establish a TCP connection before contacting the server.

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**Question 8:** Assume a typical client-server application with a TCP socket bound to a server's IP address and port. What happens when a client connects?

- A The server rejects the connection unless the client creates a new connection socket for the connection.
- B The server accepts the connection and creates a new socket for each connection.
- C The server accepts the connection and maintains the existing server socket for all connections.
- D The server rejects the connection because the socket is already bound to the server's IP address and port.

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**Question 9:** Assume a **pure** peer-to-peer application where TCP is being used. How many sockets will be used **in total** if there are 3 clients, each connected to one another (full mesh)? *Hint: each client will receive and create independent connections, no connection reuse should be considered*

- A 3
- B 15
- C 6
- D 9

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**Question 10:** When a client creates an SMTP connection to the server "mail.ntnu.no", what happens first on the client's side?

- A The creation of a client TCP socket.
- B A DNS query to resolve "mail.ntnu.no".
- C The creation of a server socket.
- D A DNS query to resolve the root, top-level and authoritative servers for "mail.ntnu.no".