

1. In a client-server architecture, the server
 - A. is always on
 - B. has a fixed, well-known IP address
 - C. can be implemented by a cluster in a datacenter
 - D. all of the above

2. In comparison with client-server architectures, P2P architectures are
 - A. self-scalable and cost effective
 - B. simple to manage
 - C. securer and more reliable due to their highly decentralized structure
 - D. all of the above

3. What services are provided by TCP/UDP?
 - A. reliable data transfer
 - B. throughput
 - C. timing
 - D. all of the above

4. What information is used by a browser process running on one host (IP address 1.2.3.4) to send a HTTP message to a web server process running on another host 1.2.3.5? The port number associated with HTTP and mail server are 80 and 25 respectively. Suppose the host 1.2.3.5 also runs a mail server.
 - A. (1.2.3.5, 80)
 - B. (1.2.3.4, 80)
 - C. (1.2.3.5, 25)
 - D. (1.2.3.4, 25)

5. DNS is a core network function that is implemented at application layer via the client-server paradigm.
 - A. True
 - B. False

6. A centralized design of DNS will not scale, because
 - A. The server becomes a single point of failure
 - B. Significant delay (during communication) to distant querying clients
 - C. The server will need to handle a high volumn of traffic
 - D. all of the above

7. Which type of DNS server does *not* belong to the DNS server hierarchy
 - A. root
 - B. local
 - C. authorative
 - D. top level

8. DNS database stores resource records — four-tuples that contain the fields (Name, Value, Type, TTL). Which of these fields appear in a DNS query message?
- (Name, Type)
 - (Name, TTL)
 - (Type, TTL)
 - (Name, Value)
9. Consider file distribution in a network of 1 server and N peers: the server owns a file, the task is to get every peer a copy. Suppose the upload rate of the server is u_s , the download and upload rate of i th peer is d_i (The minimum download rate is d_{min}) and u_i . The size of the file is F . In a P2P architecture, the time it takes to upload the file is at least:
- F/u_s
 - $NF/u_s + u_1 + \dots + u_N$
 - $\max\{F/u_s, NF/(u_s + u_1 + \dots + u_N)\}$
 - $\max\{F/u_s, NF/(u_s + u_1 + \dots + u_N), F/d_{min}\}$
10. Consider file distribution in a network of 1 server and N peers: the server owns a file, the task is to get every peer a copy. Suppose the upload rate of the server is u_s , the download and upload rate of i th peer is d_i and u_i . The size of the file is F .
- In a client-server architecture, the time it takes the server to upload the file is at least _____
 - In a P2P architecture, the total upload capacity is _____
11. In a proprietary network application, the client and server programs running on different end hosts are developed by the same developer (team).
- True
 - False