1. A multinational company has multiple branch offices. The head office and all of its branches have fully migrated to IPv6. However, the country it's situated in is still using IPv4. Which of the following technique should be used? Select one **[3]**

   ◾ Dual Stack   ◾ Tunneling   ◾ NAT

2. Consider the following communication events within an international organization's IT ecosystem: **[2+2+2]**

   a. A customer accesses a global CDN (Content Delivery Network) to download a file, and the request is routed to the nearest data center.

      ◾ Multicast   ◾ Unicast   ◾ Anycast

   b. A system administrator sends a patch update to all servers in a specific department simultaneously.

      ◾ Unicast   ◾ Anycast   ◾ Multicast

   c. A group video conference is initiated, where the video feed is sent from one host to multiple invited participants, without broadcasting to everyone on the network.

      ◾ Anycast   ◾ Multicast   ◾ Unicast

3. Which of the following address is used to create a loopback address? **[2]**

   ◾ ::/64   ◾ ::1/64   ◾ ::1/128   ◾ ::1/128

4. Make a meme related to CSE421 content. **[4]**

   Try to avoid depressive memes. Meme is for laughing, not crying.

1. A multinational company has multiple branch offices. The head office has fully migrated to IPv6, while the branch offices are still on IPv4 due to legacy systems. These branches need to communicate securely and efficiently with the head office using existing internet infrastructure. Which of the following techniques should be used? Select one **[3]**

   ☐ Dual Stack   ☐ Tunneling   ☐ NAT

2. A global software company manages a cloud-based service with millions of users across different continents. They have implemented different methods of IP addressing and routing to optimize delivery based on specific requirements. **[2+2+2]**

   a. Software updates are pushed to all subscribed devices at once to ensure synchronized deployment.

      ☐ Multicast   ☐ Unicast   ☐ Anycast

   b. When users try to access the login portal, the request is routed to the geographically closest server to reduce latency.

      ☐ Unicast   ☐ Anycast   ☐ Multicast

   c. A customer sends a support request, which must be routed to a specific server assigned to the customer.

      ☐ Anycast   ☐ Multicast   ☐ Unicast

3. Which of the following address is used to communicate with the device itself? **[2]**

   ☐ ::/64   ☐ ::/128   ☐ ::1/128   ☐ ::1/128

4. Make a meme related to CSE421 content. **[4]**

   Try to avoid depressive memes. Meme is for laughing, not crying.