**Question 2:- A network administrator notices abnormal traffic patterns on a router interface. Investigate and provide recommendations for resolution.**

**Answer 2:**

To investigate abnormal traffic patterns on a router interface, follow these steps:

1.**Collect** **Data**: Use network monitoring tools like Wireshark to capture and analyse the traffic on the router interface. This will help you identify the type of traffic (TCP, UDP, HTTP, HTTPS, or ICMP) and any unusual patterns.

1.**Analyze** **Traffic**:

1. i)TCP and UDP Analysis: Look for an unusually high volume of retransmissions or dropped packets, which could indicate network congestion, packet loss, or issues with specific applications or services.
2. ii)HTTP Analysis: Check for slow or failed requests, errors, timeouts, or long response times. These issues might suggest problems with web servers or network congestion.
3. iii)HTTPS Analysis: Ensure that encrypted connections are established correctly. Check for certificate errors or handshake failures, which could compromise data integrity or confidentiality.
4. iv)ICMP Analysis: Assess network performance by identifying packet loss or high latency. These issues might indicate network congestion, hardware failures, or misconfigurations.

3.**Identify** **Potential** **Causes**:

1. i)Faulty hardware (routers, switches, firewalls)
2. ii)Unexpected usage patterns (network bandwidth spikes, changes in app configuration)
3. iii)Security breaches

4.**Recommendations** **for** **Resolution**:

1. i)Update or replace faulty hardware
2. ii)Implement traffic shaping or QoS techniques to manage network bandwidth
3. iii)Improve network security measures to prevent security breaches
4. iv)Regularly monitor network performance to quickly identify and fix network problems.

By following these steps, you can effectively investigate and resolve abnormal traffic patterns on a router interface. Remember, proactive monitoring and regular maintenance are crucial to maintaining a healthy and reliable network infrastructure.