1. IP 172.30.64.0/20 Subnetwork A: LAN, 12 hosts Subnetwork B: LAN, 50 hosts Subnetwork C: LAN, 15 hosts Subnetwork D: WAN, point-to-point link between two routers Calculate in detail for subnetwork A and complete the table.
   | Address | Subnet mask | Hosts address interval | Broadcast address |

2. What is the number of hosts in a network with the CIDR notation /29?

3. The migration from IPv4 to IPv6 is progressive. Tunneling is one possible way to coexist IPv4 and IPv6. Explain the principle of Tunneling.

4. In IPv6, there are 6 types of unicast addresses including two main types:

5. An IPv6 address contains 3 fields: Global routing prefix, Subnet ID, and Interface ID.

6. What is the total bit length of the IPv6 address? How many bits are used for the network prefix in IPv6?

7. Consider the following IPv6 address with three fields: fe80::fc99:47ff:fe75:cee0

8. How was the interface part of this address generated? Why?

9. What is the non-compressed form of the following IPv6 address: 2001:0BC0:0:0:1:200 ?

10. What is the command following R1# Traceroute 192.168.40.0 ?

11. Give 2 functions ensured by TCP.

12. List 2 examples of applications with their associated port numbers.

13. What is the role of the DNS server?

14. What is the difference between IMAP and POP protocols?

15. Why do audio and video streaming applications use the UDP protocol rather than TCP? Circle the correct answer:
   a) Audio and video applications require the reception of all packets, whatever the delay.
   b) The three-step connection used by the UDP protocol speeds up the flow of audio and video.
   c) Audio and video applications do not tolerate the delay resulting from retransmissions.
   d) UDP guarantees delivery of segments allowing reliable audio and video stream transmission.

16. What is the address of the subnet to which the following host belongs 2001:D12:AA04:B5::1/64 ? Circle the correct answer:
   a) 2001::/64
   b) 2001:D12::/64
   c) 2001:D12:AA04::/64
   d) 2001:D12:AA04:B5::/64

17. Among the following addresses, identify and circle the 2 link-local addresses:
   a) 21aa:4859:abcd
   b) FE80::FFAA
   c) FEAA::FG12 (does not exist)
   d) FD00::7464