

**Examination questions for the academic discipline computer networks  
(Semester 5)**

1. Definition of a computer network.
2. History of development of network technologies. Basic concepts.
3. Main characteristics of computer networks.
4. Classification of computer networks.
5. Communication medium.
6. Local and global networks. Main signs, development trend.
7. Methods for ensuring the quality of service.
8. Architecture and standardization of networks.
9. The origin of the OSI reference model.
10. Interaction of levels of the OSI model. Protocols, interfaces.
11. Examples of protocols, their correspondence to the OSI model.
12. Functions of levels of the OSI model.
13. The physical layer of the OSI model.
14. Shielded and unshielded twisted pair.
15. Comparison of copper cables and optical fiber in terms of computer networks.
16. Characteristics of channels and communication lines.
17. Data coding in computer networks.
18. Data multiplexing in computer networks.
19. The link layer of the OSI model.
20. Switching methods: channel switching.
21. Switching methods: message switching.
22. Switching methods: packet switching.
23. The principle of packet data transfer. Transmitting packets using the datagram mechanism.
24. The principle of packet data transmission. Transmission of packets using the mechanism of virtual channels.
25. Topology of networks.
26. Methods of access to the transmission medium.
27. Ethernet networks.
28. Ethernet frame format.
29. Physical address in the local network (MAC).
30. FastEthernet, GigabitEthernet networks.
31. Switches. Operating principle.
32. Switches. Formation of the bridge table.

33. VLAN. Purpose, scope.