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| **KING SAUD UNIVERSITY****COLLEGE OF COMPUTER AND INFORMATION SCIENCES****COMPUTER SCIENCE DEPARTMENT** |
| **CSC 329: Computer Network** | **Tutorial 1** | **1st Semester 1437-1438** |
| **Name:**  | **Student ID:** |
| **Serial Number:** | **Section Number:** |

**Part1: Multiple-Choice Questions**

1. Frequency of failure and network recovery time after a failure are measures of the \_\_\_\_\_\_\_of a network.

 a. Performance

 b. Reliability

 c. Security

 d. Feasibility

1. Which topology requires a central controller or hub?

 a. Mesh

 b. Star

 c. Bus

 d. Ring

1. Which topology requires a multipoint connection?

 a. Mesh

 b. Star

 c. Bus

 d. Ring

1. In a network with 25 computers, which topology would require the most extensive cabling?

 a. Mesh

 b. Star

c .Bus

d .Ring

1. A television broadcast is an example of \_\_\_\_\_\_\_\_ transmission.

 a. Simplex

 b. Half-duplex

 c. Full-duplex

 d. Automatic

1. A \_\_\_\_\_\_\_\_ connection provides a dedicated link between two devices.

 a. Point-to-point

 b. Multipoint

 c. Primary

 d. Secondary

1. In \_\_\_\_\_\_\_ transmission, the channel capacity is shared by both communicating devices at all times.

 a. Simplex

 b. Half-duplex

 c. Full-duplex

 d. Half-simplex

1. The Internet model TCP/IP consists of \_\_\_\_\_\_\_\_ layers.

a. Three

b. Five

c. Seven

d. Eight

9) The process-to-process delivery of the entire message is the responsibility of the\_\_\_\_\_\_layer.

a. Network

b. Transport

c. Application

d. Physical

10) The \_\_\_\_\_\_\_\_ layer is the layer closest to the transmission medium.

a. Physical

b. Data link

c. Network

d. Transport

11) Mail services are available to network users through the \_\_\_\_\_\_ layer.

a. Data link

b. Physical

c. Transport

d. Application

12) As the data packet moves from the lower to the upper layers, headers are \_\_\_\_\_\_\_

a. Added

b. Subtracted

c. Rearranged

d. Modified

13) The physical layer is concerned with the transmission of \_\_\_\_\_\_\_ over the physical medium.

a. Programs

b. Dialogs

c. Protocols

d. Bits

14) Which layer functions as a link between user support layers and network support layers?

a. Network layer

b. Physical layer

c. Transport layer

d. Application layer

15) Which of the following is an application layer service?

a. Remote log-in

b. File transfer and access

c. Mail service

d. All the above

**Part2: Exercises**

1. Assume six devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device?
2. For each of the following four networks, discuss the consequences if a connection fails.
3. Five devices arranged in a mesh topology
4. Five devices arranged in a star topology (not counting the hub)
5. Five devices arranged in a bus topology
6. Five devices arranged in a ring topology
7. Draw a hybrid topology with a star backbone and three ring networks.
8. Match the following to one or more layers of the TCP/IP model:
9. Route determination.
10. Flow control.
11. Interface to transmission media.
12. Provides access for the end user.
13. Reliable process-to-process message delivery.
14. Defines frames.
15. Provides user services such as e-mail and file transfer.
16. Transmission of bit stream across physical medium.
17. Communicates directly with user’s application program.
18. Error correction and retransmission.
19. Mechanical, electrical, and functional interface.
20. Responsibility for carrying frames between adjacent nodes.



Figure 1

1. In Figure 1, assume that the communication is between a process running at computer A with port address i and a process running at computer D with port address j. Show the contents of packets and frames at the network, data link, and transport layer for each hop.