



Answer the following questions. The total credit is 60. **The Exam is in six Pages**

Question (1) (10 points)

MULTIPLE CHOICE: Choose the correct answer and fill in the following table (Only one choice)

1	2	3	4	5	6	7	8	9	10

1. Error control is needed at the transport layer because of potential errors occurring _____.
 - a. from transmission line noise
 - b. in routers
 - c. from out-of-sequence delivery
 - d. from packet losses.
2. Which of the following protocols is stateless?
 - a. FTP
 - b. SMTP
 - c. SSH
 - d. HTTP 1.0
3. Which type of network can connect a city?
 - a. LAN
 - b. WAN
 - c. Internet
 - d. All of the above
4. The data link layer :
 - a. Provides a well-defined service interface to the network layer.
 - b. Deals with transmission errors
 - c. Regulating the flow of data so that slow receivers are not swamped by fast senders
 - d. All of the above.

5. What is the port number for HTTP?
- 80
 - 25
 - 119
 - 70
6. Four routers have to be interconnected in a point-to-point Network. Each pair of routers may be connected by a high-speed line, a medium speed line or a low speed line. Find the total number of topologies.
- 12
 - 81
 - 48
 - 729
7. Which layer deals with the raw bits?
- Physical.
 - Data Link.
 - Application.
 - Network.
8. The slowest transmission speeds are those of
- twisted-pair wire
 - coaxial cable
 - fiber-optic cable
 - microwaves
9. In CRC there is no error if the remainder at the receiver is
- equal to the remainder at the sender
 - zero.
 - nonzero.
 - the quotient at the sender
10. Which layer in the OSI model performs error recovery functions?
- Physical.
 - Application.
 - Network.
 - Transport

Question (2) (15 points)

Fill in the following table using True or False:

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15

1. With non-persistent connections between browser and origin server, it is impossible for a single TCP segment to carry two distinct HTTP request messages
2. Physical addressing, error control and access (to media) control are managed by the Physical Layer
3. Error detection at the data link level is achieved by Hamming codes.
4. Two different Web pages can be sent over the same persistent connection?
5. A communications protocol is a set of rules that every computer follows to transfer information.
6. A one-bit parity scheme has Hamming distance equal to 1.
7. The linear bus topology requires more cable length than star.
8. A repeater is a device that receives a radio signal, strengthens it, and sends it on.
9. All nodes connected to the Internet must implement UDP
10. IP address refers to a server address.
11. Media Access Control is a function of the data-link layer.
12. In connection oriented communication, the server sends an acknowledgment after the client sends its request.
13. Bit rate is the number of bits transmitted during one minute.
14. In OSI network architecture, the routing is performed by the Data Link Layer.
15. An interface tells the processes above how to access the layers below but not how the layers work.

