Computer Networks | Fall 2020

Cairo University
Faculty of Engineering
Computer Engineering Dept.
CMP(N)405

Sheet 1-Solution

1) Mention three differences between a service and a protocol.

Service: connects two adjacent layers, provides description for example: Connect
Protocol: between two peers , provides implementation for example TCP.

2) Give two advantages for using layered protocols.

1) Modularity 2)Flexibility 3) Scalability 4) Maintainability

3) Mention the names of bottom 4 layers of the OSI model and mention the main functionality for each layer and give examples for a protocol and a network device used in each layer.

1) Physical layer: bits transmission , [Ethernet-USB] ,[repeaters, hubs, cables]
2) DataLink layer: [Framing-error detection- Local Adressing], [PPP] , [Switch]
3) Network layer: [Routing] ,[Ipv4, IpV6,CLNP], [Routers]
4) Transport Layer: [End to End , Connection oriented] , [TCP], [end device]

4) Mention the names of the OSI layers which are similar to those of TCP/IP model.

Network , Transport and Application Layers

5) Which OSI layer handles each of the following?

  a. Delivers raw bits from one peer to the other [*Physical*]
  b. Provides end-to-end communication [*Transport and above*]
  c. Divide the raw bit stream into units of transmission [*Data Link*]
  d. Determine the route from source to destination [*Network*]

6) Provide an example for each of the following:

  a. Connection oriented protocol   *TCP*
  b. Connectionless protocol   *UDP*

7) Write TRUE or FALSE in front of each of the following statements:

  a. An implementation of a connectionless service may contain two primitives only.
  b. In the OSI model, a protocol specifies the rules governing information exchange between adjacent layers.
  c. IPV6 is a layer 3 protocol.
  d. A file system provides a connection oriented service.

a) True b)False   c)True d)True