**Network Models**

**By**

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**Submitted To**

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**1.** Complete following table to name and describe seven-layers of the OSI model. The description should include at least 2-3 functions of each layer. **(14 points)**

| **Layer Number** | **Layer Name** | **Description** |
| --- | --- | --- |
| 7 | Application | Handle all user interaction with the data |
| 6 | Presentation | Format data, translate between character code sets |
| 5 | Session | Handle communication between devices, |
| 4 | Transport | Break the data into segments, reconstruct segments into original data |
| 3 | Network | Manage logical addresses and ensure correct destinations |
| 2 | Data Link | Validate data, check for errors, flow control |
| 1 | Physical | Deal with communication signals and receive incoming media |

**2.** Give three advantages of using layered models to understand data communications and networking. **(5 points)**

**They assist in protocol design, because it clearly defines the data that a specific layer can manipulate**

**They prevent changes in one layer from effecting all other layers**

**They provide a common language to describe the networking functions and uses**

**3.** What is encapsulation? **(4 points)**

**A packaging system to keep data together while in transport.**

**4.** What is the purpose of flow control at the transport layer of the OSI model? **(4 points)**

**It is used to limit the amount of data being sent at one time to prevent overflow.**

**5.** What is window size? **(5 points)**

**The amount of segments transmitted at one time.**

**6.** Use *ipconfig /all* command to provide following information about the NIC (Network Interface Card) in your lab or home computer. **(6 points)**

**MAC Address:** **34-17-EB-AD-03-03**

**NIC Manufacturer Name: Dell Inc.**

**Organizationally Unique Identifier (OUI): 34:17:EB**

**7.** List OSI model layers that are equivalent to following TCP/IP model layers. **(4 points)**

| **TCP/IP Model Layers** | **Name(s) of Equivalent OSI Model Layer(s)** |
| --- | --- |
| Application | Application, Presentation, Session |
| Transport | Transport |
| Internet | Network |
| Network Access | Data Link, Physical |

**8.** What is the difference between logical and physical addresses? Give one example of each type. **(6 points)**

**A logical address exists only in the device’s memory, and can be relocated to point at anything else. E.X. a cpu pointer to an application on the hard drive**

**A physical address exists on the device itself and refers to a specific item, and can’t be changed. E.X. an actual location on a hard drive.**

**9.** Is 00:21:9B:4D:K2:26 a valid MAC address? You should justify your answer with an explanation. **(2 points)**

**No. MAC Addresses can not use the letter K, only 0-9 and A-F.**