Computer Networks-A - Objective

Total Points: 60 Time Allowed: 30 minutes

Use time & space efficiently!

**Define Modulation and Encoding? What is the difference between the two? (2)**

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**Define Data Rate and Baud Rate? What is the difference between the two? (2)**

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**The maximum data rate of a channel depends on three factors, name them? (3)**

**1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**List down three main differences between DNS and ARP (3)**

**1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**List down three main differences between IP address and MAC address (3)**

**1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**What is the main feature that makes switch an ‘intelligent’ hub. Explain (2)**

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**It is said that layer 2 switch works in a ‘transparent’ manner. Explain (2)**

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**Out of the 5 layers of TCP/IP model, which layers are made in software and which layers are made in hardware? (2)**

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**Name two protocols that do not fall into the traditional 5 layers of TCP/IP model i.e., they cross two layers. Also list which layers they cross? (4)**

Protocol 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Protocol 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What is the “core” responsibility of Transport Layer? What is the “core” responsibility of Network Layer? (2)**

Transport Layer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Network Layer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What is the main difference between “Forwarding” and “Routing”? (2)**

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**What is the best case and the worst case network efficiency for Bit-Map protocol? Explain all the terms involved in any formula (2)**

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**Channel efficiency of Ethernet is given as . Explain the consequences of increasing network bandwidth (B), assuming everything else remains constant. (1)**

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**Fill in the table by providing “Yes” or “No” (6)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | ALOHA | Non Persistent | CSMA/CD |
| Slotted Time |  |  |  |
| Reservation Based |  |  |  |
| Carrier Sense |  |  |  |
| Aborts on Collision |  |  |  |

**What is the main trade off between CSMA protocols and Reservation based protocols? (2)**

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**It is said that 1-persistent CSMA is ‘greedy’. Do you agree? Explain your answer (2)**

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**Consider the discussion on IPv4 to IPv6 transition. What is the main benefit of “tunneling” as compared to the “dual stack approach”? Explain tunneling briefly. (2)**

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**Explain the two major reasons because of which Internet is not a single network but a series of connected Autonomous Systems. (2)**

Reason 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reason 2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Both iBGP and OSPF protocols run inside an Autonomous System. What is the specific purpose of each? In which order should they run? Does the order matter? (3)**

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**Explain TCP Fast Retransmit policy. (1)**

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**Explain the functionality of “Receive Window” field in the TCP Header. (2)**

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**Following Two Questions relate to the ACM Webinar on Future of the Internet**

**What is meant by Digital Vellum? Why is it a huge challenge? (2)**

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**What are Delay and Disruption tolerant Networking protocols? How are they different from TCP? Where are they used? (3)**

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**Following Two questions relate to the Seminar on Server Virtualization and Consolidation**

**What is meant by Server Consolidation? Give two advantages of server consolidation. (3)**

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**What is a Hypervisor? What percentage of resources does it consume? (2)**

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