EL-GY 5373 Pop Quiz Five

Name: _____ Student ID: _____

I. Select ALL CORRECT answers for the following questions.

1. When an Ethernet switch transmits an Ethernet frame, the frame has
   a) the swtitch's LAN address of the transmitting port as its source address
   b) the broadcast address as the its source address
   c) the swtitch's LAN address as its destination address
   d) none of the above
2. How does a host support multiple applications over Internet?
   a) Use multiple IP addresses one for each application
   b) Use multiple hardware interfaces one for each application
   c) Use multiple media access addresses (MACs) one for each application
   d) Use one IP address but multiple service access points, a.k.a. transport layer port numbers, one for each application
3. Which of the following correctly describes layer-3 (IP) switches/routers versus layer-2 switches/bridges?
   a) A network of layer-3 switches is considered to have a structured address space.
   b) A layer-3 network contains no closed loops to interconnect layer-3 switches.
   c) Layer-3 switch separates a few layer-2 switches to form subnetworks.
   d) A layer-3 network allows multiple routes between any pair of layer-3 switches.

II. Given an IP address for a host with subnetting as 202.168.2.161/27, answer the following questions:

1. What is the subnet address for the network this host is connected to?
   202.168.2.160/27

   Last byte: 101 00000

2. What is the broadcast address in this subnet?

   202.168.2.191/27

   Last byte: 101 11111

3. If this subnet is created from a class-C network, what is the network address of this class-C network?

   202.168.2.0

   Note a class-C network must have all 0's as the last byte

Must How many bits are used in this class-C network for the subnet ID with /27 mask?

3 bits

4. How many subnets can be supported with the subnetting identified above?

   8 subnets

5. How many hosts can be supported in each subnet identified in 4 above?

   2^5–2 = 30, minus an address with all 0's to represent the subnet itself, and another address with all 1's useed as the broadcast address for the subnet

6. List ALL subnet addresses within this class-C network as you identified in 4 above.

   202.168.2.0/27 → last byte: 000 00000

   202.168.2.32/27 001 00000

   202.168.2.64/27 010 00000

   202.168.2.96/27 011 00000

   202.168.2.128/27 100 00000

   202.168.2.160/27 101 00000

   202.168.2.192/27 110 00000

   202.168.2.224/27 111 00000
