Portfolio Exercise 1c: IP Address and Subnet Mask Calculations

This portfolio exercise covers simple calculations on IP address and subnet masks. A second portfolio exercise covers IP address classes and subnet creation.

Objectives

- *Perform straightforward IP address and subnet mask calculations in binary and decimal*
- *Collect portfolio evidence as part of Grading Criteria P3*

Task1: Simple IP Addresses and Subnet Masks

The following questions are all concerned with carrying out IP address and subnet mask calculations. You are expected to carry out the calculations yourself. Attempt ALL of the questions.

Please ensure you show all your calculations steps on a separate piece of paper

Q1. How many bits does an IP address have? _____

Q2. How many bits does a subnet mask have? _____

Q3. How many octets does an IP address have? _____

Binary to Decimal Conversions

Q4. Write the subnet mask 11111111.00000000.00000000.00000000 in dotted decimal form.

_____

Q5. Write the IP address 11000000.10101000.00010100.00000011 in dotted decimal form.

_____

Decimal to Binary Conversions

Q6. Write the subnet mask 255.255.0.0 in dotted binary form.

_____

Q7. Write the IP address 192.168.12.1 in dotted binary form.

_____

Task2: Calculate Network and Host Parts of a Given Address

Please ensure you show all your calculations steps on a separate piece of paper

The IP address and subnet mask of a computer on a network are as follows:-

- IP address: 192.168.12.1
- Subnet Mask:255.255.0.0

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Q8. Write down the IP address in dotted binary form

_____

Q9. Write down the subnet mask in dotted binary form

_____

Now perform the appropriate calculations to obtain the network and hosts parts of the address.

Q10. Write down the Network Part _____

Q11. Write down the Host Part _____

Task3: Calculate Network and Host Parts of Your PC Address

This task expects you to carry out straightforward calculations on the IP address of the workstation you normally use. Thus your calculations will be different to any other student's calculation in the class.

Please ensure you show all your calculations steps on a separate piece of paper

Q12. Write down the IP address of your workstation _____

Assume the subnet mask is **255.255.255.0**

Perform the appropriate calculations to obtain the network and host parts of the IP address.

Q13. Write down the Network Part _____

Q14. Write down the Host Part _____

Q15. How many numbers can you have using 8 bits? _____

Q16. How many hosts can you have on this network using this subnet mask? _____

Evidence

Please supply the following evidence to support your implementation of this task

- Attach all separate sheets of paper on which you performed your workings out.

Please annotate, sign, date, put the portfolio exercise number and exercise numbers on all evidence pages