Assignment 1

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| Course Code: | IT2B (Network) |
| Course Name: | Network Administration |
| Assignment: | CIDR Assignment |

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| Textbook: | Lammle, Todd. (2021). CompTIA Network+ Study Guide (5e). Sybex. |

Materials and Resources

Assignment Description

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| In this assignment, you will solve CIDR-related problems. |

Assignment Steps

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| Activity Steps |
| 1. Binary-Decimal Number Conversion **(12 marks)**     1. Convert the following decimal numbers to binary.   88 = 01011000  241 = 11110001  99 = 01100011  42 = 00101010  169 = 10101001  311 = (Not applicable)   * 1. Convert the following binary numbers to decimal.   01011100 = 92  00111100 = 60  11110000 = 240  10101011 = 171  11001011 = 203  01111101 = 125 |
| 1. Subnetting Class A, B, and C Networks **(30 marks)**   Subnet the following networks (using 2n = number of subnets) – figure out the subnet mask required, the first 3 usable ranges, and the number of hosts per subnet.  3.0.0.0/8 network (with 6 subnets) **(5 marks)**   * New subnet mask: /11 ---> 255.224.0.0 * Block size: 256 – 224 = 32 * Number of networks: 2^3 = 8 * Number of hosts: 2^21- 2 = 2,097,152 – 2 = 2,097,150 * First 3 usable ranges: 3.0.0.   192.168.7.0/24 network (with 11 subnets) **(5 marks)**  131.19.0.0/16 network (with 2 subnets) **(5 marks)**  111.0.0.0/8 network (with 15 subnets) **(5 marks)**  177.2.0.0/16 network (with 21 subnets) **(5 marks)**  220.13.42.0/24 network (with 3 subnets) **(5 marks)** |
| 1. Difficult Subnet Examples **(8 marks)**   Subnet the following network (using 2n  = number of subnets) – figure out the subnet mask required, the first and last 3 usable ranges, and the number of hosts per subnet.  101.0.0.0/8 network (with 1300 subnets) |
| 1. Identifying the Broadcast ID of a Subnet. **(7 marks)**     1. Identify the broadcast ID for the 2nd usable subnet in all exercises in Question 2.    2. Identify the broadcast ID for the 2nd usable subnet in Question 3. |
| 1. Identify whether the following hosts are on the same subnet (or not). **(6 marks)**    1. 192.168.7.62/28 and 192.168.7.70/28    2. 88.91.0.113/11 and 88.95.45.1/11    3. 4.0.0.6/16 and 4.0.5.2/16    4. 155.19.161.2/22 and 155.19.141.7/22    5. 201.251.199.21/26 and 201.251.199.55/26    6. 181.14.22.7/25 and 181.14.22.102/25 |
| 1. Supernetting Class C Networks **(2 marks)**     1. Figure out the subnet mask required for the following network that will be supernetted.   192.168.88.0/24  192.168.89.0/24  192.168.90.0/24  192.168.91.0/24  b. Figure out the broadcast ID for the supernetted network in a. |

Rubric

See the marks awarded for each section outlined in the steps/instructions.

This assignment is out of /65.