**Network Mapping Lab**

**Part1:**

1. An organization is granted a block; one address is 110.10.10.64/20. The organization needs 10 subnets of equal size. What is the subnet prefix length?

**/24**

2. An organization is granted a block; one address is 110.10.10.64/25. If the subnet prefix length is /28, what is the maximum number of subnets?

**\_8\_ subnets of \_16\_ total addresses each**

3. An organization is granted a block of classless addresses with the starting address: 156.78.51.0/22. They want to create subnets of size, 512, 256, 128, and 128. What is the subnet prefix for each subnet.

**512 prefix = /23**

**256 prefix = /24**

**128 prefix = /25**

**128 prefix = /25**

**Part2:**

**Weber State University is given an IP addresses block of 137.190.0.0 /16. There are 7 colleges (Applied Science, Arts & Humanities, Business & Economics, Education, Health, Science, and Social & Behavioral Science) and 4 divisions (Administrative Services, Facilities Management, Information Technology, and Student Services). The University has found that it needs to divide its network up evenly among all of the groups. Complete the following information to show how you would divide the network**

Name Organization Network Address Subnet Mask

**Colleges:**

Applied Science \_\_\_\_\_\_\_\_\_137.190.0.0 /20

Arts & Humanities \_\_\_\_\_\_\_\_\_137.190.16.0 /20

Business & Economics \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.32.0 /20

Education \_\_\_\_\_\_\_\_\_\_\_137.190.48.0 /20

Health \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_197.190.64.0 /20

Science \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.80.0 /20

Social & Behav. Science \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 137.190.96.0 /20

**Divisions:**

Administrative Services \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_197.190.112.0 /20

Facilities Management \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.128.0 /20

Information Technology \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.144.0 /20

Student Services \_\_\_\_\_\_\_137.190.160.0 /20

**Now take the Organization Network Address and Subnet Mask that you created for each college and create a subnet network address of equal size for the departments listed in the colleges below**

**COLLEGES**

**Applied Science** (Computer Science, Sales and Service Technology, Electronic Engineering, Construction Management, Automotive Technology, Network Technology)

Name Organization Network Address Subnet Mask

Computer Science \_\_\_\_\_\_\_\_\_\_\_\_\_137.190.0.0 /23

Sales and Service Technology \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.2.0 /23

Electronic Engineering \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.4.0 /23

Construction Management \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.6.0 /23

Automotive Technology \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.8.0 /23 Network Technology \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.10.0 /23

**Arts & Humanities** (Foreign Languages, English, Visual Arts, Performing Arts, Communications)

Name Organization Network Address Subnet Mask

Foreign Languages \_\_\_\_\_\_\_\_\_\_\_\_\_137.190.16.0 /22

English \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.20.0 /22

Visual & Performing Arts \_\_\_\_\_\_\_\_137.190.24.0 /22

Communications \_\_\_\_\_\_\_\_137.190.28.0 /22

**Education** (Child and Family Studies, Health Promotion, Teacher Education, Athletic Training, Human Performance)

Name Organization Network Address Subnet Mask

Child and Family Studies \_\_\_\_\_\_\_\_137.190.48.0 /23

Health Promotion \_\_\_\_\_\_\_\_137.190.50.0 /23

Athletic Training \_\_\_\_\_\_\_\_137.190.52.0 /23

Human Performance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.54.0 /23

Teacher Education \_\_\_\_\_\_\_\_137.190.56.0 /23

**Social & Behavioral Science** (Criminal Justice, Geography, History, Military Science, Philosophy & Political Science, Psychology, Social Work, Sociology & Anthropology)

Name Organization Network Address Subnet Mask

Criminal Justice \_\_\_\_\_\_\_137.190.96.0 /24

Geography \_\_\_\_\_\_\_137.190.97.0 /24

History \_\_\_\_\_\_\_\_\_\_\_\_\_137.190.98.0 /24

Military Science \_\_\_\_\_\_137.190.99.0 /24

Philosophy & Poli Sci \_\_\_\_\_\_\_\_\_\_\_\_\_137.190.100.0 /24

Psychology \_\_\_\_\_\_\_137.190.101.0 /24

Social Work \_\_\_\_\_\_\_137.190.102.0 /24

Sociology \_\_\_\_\_\_\_\_137.190.103.0 /24

Anthropology \_\_\_\_\_\_\_\_\_\_\_\_\_\_137.190.104.0 /24

**Now take the Organization Network Address and Subnet Mask that you created for each division and create a subnet network address for each of the departments listed in the division below based upon the size of the department**

**DIVISIONS**

**Administrative Services** (Athletics, Accounting, Budget, Environmental Health & Safety, Printing, Human Resources, Purchasing)

Name Organization Network Address Subnet Mask

Athletics (250) \_\_\_\_\_\_\_\_\_137.190.123.0 /25

Accounting (1000) \_\_\_137.190.116.0 /22

Budget (500) \_\_\_\_\_\_\_\_\_137.190.120.0 /23

Enviro Health & Safety (100) \_\_\_\_\_\_\_\_\_\_137.190.122.0 /24

Printing (1000) \_\_\_\_\_\_\_\_\_\_ 137.190.116.0 /22

Human Resources (100) \_\_\_\_\_\_\_\_\_137.190.123.128 /25

Purchasing (90) \_\_\_\_\_\_\_\_\_137.190.128.0 /25

**Facilities Management** (Campus planning, Construction, Custodial, Landscaping, Electrical, Mechanical, Business Services)

Name Organization Network Address Subnet Mask

Campus planning (300) 137.190.136.0 /23

Construction (200) 137.190.142.0 /24

Custodial (800) 137.190.132.0 /22

Landscaping (100) 137.190.143.0 /25

Electrical (500) 137.190.138.0 /23

Mechanical (400) 137.190.140.0 /23

Business Services (900) 137.190.128.0 /22