

Practice Exam Questions

Maps, Field Navigation & Basic Surveying

Geodetic surveying is generally more accurate than plane surveying although plane surveying is the most commonly used method. TRUE or FALSE

Of this list, what is the most important concept in mapping, coordinate systems, datums, and surveys? (Choose ONLY one.)

- a. commonly agreed upon standards
- b. accurate measurement devices
- c. powerful GIS software

Let's say someone had calibrated their pace to be 13 paces per chain. They paced off the distance from their current location to another known location and found it was 520 paces. How far did they travel in feet?

What BEARING corresponds to an AZIMUTH of 225 degrees?

How many sections are in a township?

How many acres are in a quarter of a quarter section?

Social Science

Become familiar with the Robson readings Chapters 8, 9, and 11. These readings focus on measurement techniques, understanding of which will enable their application to an example recreation situation in Mt. Rainier NP given on the exam.

Soils & Microclimate

The total amount of C and N content (Mg/ha) in vegetation is almost always greater than that found in the soil because of the higher C and N concentrations (%) in plant tissues.

- a. True
- b. False

Soil maps are nearly 100% accurate but if they are not, it is because of a recent disturbance.

- a. True
- b. False

Define the term: forest throughfall

Explain why the air temperatures may be higher under the forest canopy compared to the open clearings.

Urban areas typically exhibit a 'heat island' effect. This temperature increase is generally greatest near the center of towns and decreases to the suburban areas and then to the rural areas.

- a. True
- b. False

Stream Ecology & Hydrology

1. Describe the 5 major characteristics of streamflow.
2. The major determinate of the system of stream typing in the state of Washington is stream width.
True or False.
3. What do you need to know to estimate streamflow (discharge)?
4. Define the 7 components of the hydrologic cycle.

Vegetation Assessment

What is basal area, and what good is it knowing it? How much basal area is in a tree with DBH = 18.2 inches? (Mind your units!)

Compute total height of a tree given the data following (mind your units!).

Note: $H = \text{Dist.} * \cos(S) * (T\% - B\%)/100 + \text{add-on.}$

slope distance from observer to tree	: 150 ft.
slope of ground	: -15 deg.
clino reading to top of tree	: 94%
clino reading to Breast Ht	: - 6%

Describe a transect method that might be used to determine vegetation cover.

Discuss two reasons why you would want to use large, fixed-area plots instead of small ones.
What size plot might you choose to sample large trees and why?

What is the TREE FACTOR for a Douglas-fir tree that had been measured on a 0.05-acre circular sample plot? (Mind your units!)

What is the *Site Index* for Douglas-fir growing in a western Washington stand if the average dominant height is 140 feet at 50 yr Breast Height Age? Use King's curves (figure following) to derive your answer. Be specific and explicit in your answer, particularly with regard to units.

Scientific Method & Statistics

Compute and report the mean, standard deviation, and coefficient of variation for the following sampled DBHs: 12, 13, 14, 11, 12, 13, 16

What is the difference between standard deviation and standard error?

Remote Sensing

Please draw the spectral reflectance curve for healthy vegetation and identify the vegetation index, using the diagram give the physical reason why plants show a specific response in the near-infrared region.

Wildlife Populations

1. What property must characterize an index of wildlife population abundance for it to be useful to wildlife biologists and managers?

2. Why don't wildlife populations grow indefinitely?