

NAME: _____

1. For tree species from the **Boreal Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. This understory species with opposite leaves might trip you up as you note its showy flowers that attract butterflies.		
B. Used to make tongue depressors and popsicle sticks, the bark of this species is used in craft parchment and signs.		
C. This deciduous gymnosperm is easily ID'd in winter using its prominent and numerous short shoots.		
D. The black, squat, Hershey kiss-shaped bud of this species is notable along with its stout twig and opposite leaf scars.		
E. Leaves opposite, simple, 5-lobed, serrated margins with deeply sunken veins. Fruit a double samara.		
F. This gymnosperm may look more like an angiosperm given its bright red cones called 'arils'.		
G. This circumpolar spreading shrub is used to flavor gin, although its 'fruits' are toxic in large doses.		
H. This is the drier sited of the two boreal conifers notable for the woody pegs that hold their prickly, short needles.		

2. For tree species from the **Northern Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. Ski-tracked bark, a terminal bud with a frosted tip, and a beret-like cap to the fruit are all distinct on this tree.		
B. The leaves of this evergreen species curl when it drops below freezing to retain moisture and protect themselves.		
C. This gymnosperm with a serotinous cone grows in natural monocultures.		
D. The large goose-foot shaped leaf on this angiosperm is as distinct as its green and white banded bark.		
E. This tree has needles in fascicles of two that snap when bent.		
F. This was once the dominant tree in the Appalachian Mountains, with excellent timber and wildlife value.		
G. The bark of this species is a good fire-starter and the twigs smell like wintergreen.		
H. This gymnosperm is only found at high elevations in the Southern mountains.		

_____ points

3. For tree species from the **Central Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. This tree has by far the largest fruits with the thickest husks in its genus.		
B. This shrub found in the Southern mountains has bright orange blossoms and leaves that appear whorled.		
C. This is the smallest, most shrubby species in its genus, making it easy to ID when it is fruiting at such a small size.		
D. This tree has distinct morphological differences between its finely serrated young leaves and coarsely dentate mature leaves.		
E. This relative of azaleas makes a distinctly flavored dark honey.		
F. This tree found primarily on xeric sites has bark that is reminiscent of an alligator's hide.		
G. Chestnut blight makes this tree susceptible to heart-rot and pronounced butt-swell, despite it not being a chestnut.		
H. This orange-barked gymnosperm is a poor self pruner and typically is poorly formed for sawtimber.		

4. For tree species from the **Low Elevation Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. This tree is used for baskets, wind breaks, and erosion control since it grows well near water in xeric regions.		
B. Mountain lions tend to hide their kill in thickets comprised of this species.		
C. This is one of the more important timber species in this region, and is frequently regenerated in patchy, old-growth stands by fire.		
D. This tree is alternate and bipinnately compound with small leaflets and clustered, fragrant pink-white flowers.		
E. This tree has two needles per fascicle and relatively high mast value for its large seed.		
F. The most notable feature of this tree is its dark black coarsely blocky bark, which lends it its common name.		
G. This tree was previously thought to be a variant of Ponderosa pine, but tends to have larger buds.		
H. This is the only tree in North America with one needle per fascicle.		

5. For tree species from the **Mid Elevation Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. Tattered margins of the cone scales and thick glaucous wax on the needles make this gymnosperm distinct.		
B. This poorly formed gymnosperm is found near the coast.		
C. This angiosperm known for its ability to root sprout also has creamy bark that can photosynthesize.		
D. Opposite-leaved shrub with stems square in cross-section.		
E. Following fire this species regenerates in pure stands with many 1000's of stems per acre.		
F. With needles in fascicles of 5's this tree can live for up to 500 years if it is not affected by blister rust or beetles first.		
G. Pinnately-lobed leaves turn yellow in the fall on this small tree that has high mast value for many wildlife.		
H. This tree has 5 short needles per fascicle and limbs that can be bent practically in half without breaking.		

6. For tree species from the **High Elevation Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. This enormous species has the world's largest cones.		
B. This species is currently believed to be a hybrid of two other species within its genus.		
C. Resin from this species is used for microscope slide cement and as an antiseptic for wounds.		
D. This gymnosperm has small cones with flexible scales and two stomatiferous lines on the back of each needle.		
E. A grad student cut down the oldest known member of this species with permission from the USDA Forest Service.		
F. This species is a good timber species for plywood and framing material and dominates a cover type that has been found to be habitat for 111 different bird species.		
G. This species is used to produce lumber, boxes, crates, and pulpwood if the budworm does not get the stand first.		
H. This shrub has stems and fruits that are both armed with spines, and showy 5-petaled flowers.		

7. For tree species from the **South Pacific Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. This species is rare and may be ancestral to many other gymnosperms.		
B. This species has a fuzzy naked terminal bud, pumpkin-like drupes, and trifoliolate leaves.		
C. This species has a large, distinctly curved cone with pyramid-like raised apophyses.		
D. This species has large cones (for its genus) with three-lobed bracts that stick out between the cone scales.		
E. This species has the world's heaviest cones.		
F. This species has huge egg-shaped cones with trowel-shaped apophyses.		
G. This species grows in open woodlands and can shed its round-lobed leaves to survive droughts.		
H. This is one of the keystone species to wildlife habitat within its state due to its hard mast production, among other uses.		

8. For tree species from the **North Pacific Region**, list the Genus and specific epithet of each described below (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. This gymnosperm is the largest member of its genus in terms of volume and height.		
B. This species made headlines in 2006 when it became the first tree to have its whole genome sequenced.		
C. You probably wouldn't want to grab one of these small trees to break a fall while hiking.		
D. The taxonomy of this species is subject to much debate, which probably explains why it also has several common names.		
E. This is an important early successional species that can help revegetate newly exposed sediments.		
F. Wood from this species is commonly used to make pencils due to its fine grain and aromatic properties.		
G. This species is the missing link between two other genera in its family, and is being attacked by an introduced disease.		
H. This is the most important timber species in this region.		

9. For tree species from the **ANYWHERE IN THE WORLD**, list the Genus and specific epithet of each described (1 point if full name is correct, 8 points total) Spelling can be creative, but don't push it.

Question	Genus	species
A. The world's tallest angiosperm		
B. The world's tallest living gymnosperm		
C. The world's tallest reliably recorded gymnosperm in the historical record		
D. World's largest gymnosperm from a mass basis		
E. World's oldest living gymnosperm (non-clonal)		
F. World's northernmost ranging pine		
G. World's most important non-native gymnosperm in the Southern hemisphere for timber production		
H. Tree that lent the world's fifth largest country (by land area) its name		

10. Draw and label a twig and a compound leaf. (1 point each correctly labeled feature, 12 points total)

11. *List 5 woody angiosperm species of your choosing. You must list species from at least 3 different genera. After listing your species, create an indented dichotomous key based upon leaf morphology. (5 points total)*

12. Identify the following forms of variation or concepts related to variation. (5 pts)

- A. Phenotype = Genotype + Environment + G x E:
- B. Sassafras leaves being more distinctly lobed in seedlings:
- C. A possible cause of albinism (no chlorophyll) in a leaf:
- D. Variation in phenotypes at opposite ends of the species' range:
- E. Heterosis, or the reason poplar clones grow so well:

13. List the best online resource to use for each of the following. (3 pts)

- A. Identifying an unknown woody species you found on vacation in the USA outside of the Western Gulf Region:
- B. Determining how many North American species are in the genus *Quercus*:
- C. Writing a technical report on the life history and biology of spruce pine:

14. Create your own definition of 'tree' based on what you've learned this semester. Do not use one of the definitions we have learned. (3 pts)