

## BOTANY INDEPENDENT PROJECT 1

50 points

**Items 1-9 due:** Wednesday February 19, 2020 at 8:30 am – 5 point late penalty

**Final due:** Wednesday February 26, 2020 at 8:30 am - 5 point penalty; no points after 8:30 am March 4

NAME \_\_\_\_\_ GRADE \_\_\_\_/25 = \_\_\_\_/50

### INSTRUCTIONS

1. For each numbered item below provide an image (draw, photocopy, download, photograph, scan, press and dry a plant part, make a rubbing ... your choice)
2. Label what the image is (i.e. "External view of a shoot tip")
3. Hand label all plant parts indicated. No points for using prelabeled images.

### Submit the entire project

- on 8-1/2 x 11 size plain paper (**1 point**)
- stapled at the upper left corner (**1 point**)
- with this sheet as the (only) cover (**1 point**)

### TISSUES (3 points)

1. Location of shoot apical meristem identified on an image (macroscopic or microscopic). Label what the image is (see above) and indicate the location and type of meristem.
2. Location of root apical meristem identified on an image (macroscopic or microscopic). Label what the image is and indicate the location and type of meristem.
3. Location of any lateral meristem. Label what the image is and indicate the location and type of lateral meristem.

### ROOTS (6 points)

4. A typical fibrous root system. Label what the image is.
5. A typical tap root system. Label what the image is. Label the tap root.
6. Image of a cross section of a mature monocot root. Label what the image is and identify all anatomical parts.
7. Image of a cross section of a mature eudicot root. Label what the image is and identify all anatomical parts.
8. Image of a longitudinal section of a root tip. Label what the image is and identify all growth zones/regions and the root cap.
9. Image of a modified root. Label what each image is and indicate the function for which it is modified.

### STEMS (6 points)

10. External morphology of a typical woody stem. Label what the image is and identify all anatomical parts.
11. Image of a cross section of a typical herbaceous monocot stem. Label what the image is and identify all anatomical parts.
12. Image of a cross section of a typical herbaceous dicot stem. Label what the image is and identify all anatomical parts.
13. Image of a cross section of a typical woody eudicot stem. Label what the image is and identify all anatomical parts.
14. Image showing microscopic view showing the difference between spring wood and summer wood labeled. Label what the image is and identify an annual ring.
15. Image of a modified stem. Label what each image is and indicate the function for which it is modified.

### LEAVES (7 points)

16. Images showing a palmately compound leaf and a pinnately compound leaf. Label what the image is and identify each leaf type.
17. Images showing alternate leaf arrangement and opposite leaf arrangement. Label what the image is and identify each leaf arrangement.
18. Image of the external morphology of a typical simple, petiolate eudicot leaf. Label what the image is and identify all anatomical parts.
19. Image of the external morphology of a typical monocot leaf. Label what the image is and identify all anatomical parts.
20. Image of a cross section of a typical eudicot leaf. Label what the image is and identify all anatomical parts.
21. Image of a cross section of a typical monocot leaf. Label what the image is and identify all anatomical parts.
22. Image of a modified leaf. Label what each image is and indicate the function for which it is modified.