

<b>Station 1 – 19 Total</b>	<b>Plant A</b>	<b>Plant B</b>
<p>To what taxon does each plant belong?</p>	<p><i>Anthocerotophyta</i> <b>1</b></p>	<p><i>Andraeopsida</i> <b>1</b></p>
<p>Based on what you <b>know</b> about <b>this</b> organism, circle the term(s) that apply to it.</p> <p>Wrong answers will be penalized.</p> <p><b>Must have taxon correct to get credit for this section.</b></p> <p><b>Deduct 1/2 mark for each term incorrectly labeled</b></p>	<ul style="list-style-type: none"> <li>- calyptra</li> <li>- thallus-calyptra <b>1/2</b></li> <li>- columella <b>1/2</b></li> <li>- complex oil bodies</li> <li>- mucilage cleft <b>1/2</b></li> <li>- basal meristem <b>1/2</b></li> <li>- operculum</li> <li>- pseudopodium</li> <li>- pyrenoid <b>1/2</b></li> <li>- smooth rhizoids <b>1/2</b></li> <li>- pegged rhizoids</li> <li>- multicellular rhizoids</li> <li>- unicellular rhizoid <b>1/2</b></li> <li>- biseriate rhizoids</li> <li>- triseriate rhizoids</li> </ul>	<ul style="list-style-type: none"> <li>- calyptra <b>1/2</b></li> <li>- thallus-calyptra</li> <li>- columella <b>1/2</b></li> <li>- complex oil bodies</li> <li>- mucilage cleft</li> <li>- basal meristem</li> <li>- operculum</li> <li>- pseudopodium <b>1/2</b></li> <li>- pyrenoid</li> <li>- smooth rhizoids – no deduction, no credit</li> <li>- pegged rhizoids</li> <li>- multicellular rhizoids <b>1/2</b></li> <li>- unicellular rhizoid</li> <li>- biseriate rhizoids <b>1/2</b></li> <li>- triseriate rhizoids</li> </ul>
<p><u>For Plant A only:</u></p> <p>Beside each label indicate the <b>ploidy</b> of the structure</p>	<p>Indicate appropriate labels for the image taped to bench:</p> <p>A <i>pseudo-elaters</i> <b>1</b> (okay for elater) <u>2N</u> <b>1</b></p> <p>B <i>columella</i> <b>1</b> <u>2N</u> <b>1</b></p> <p>C <i>spore</i> (or sporogenous layer) <b>1</b> <u>1N</u> <b>1</b></p> <p>D <i>sporangial jacket</i> <b>1</b> <u>2N</u> <b>1</b></p>	
<p>Compare and contrast spore dispersal by these two organisms (based on what you know).</p> <p><b>Note:</b> marks for <b>1</b> similarity and <b>2</b> differences</p>	<p><i>Similarities: 1 (for good answers)</i></p> <ul style="list-style-type: none"> <li>- dehisces along longitudinal lines</li> </ul> <p><i>Differences: 2 (any two good answers)</i></p> <ul style="list-style-type: none"> <li>- spores dispersed over a very extended time in A, shorter in B</li> <li>- pseudoelaters assist in spore dispersal in A, not in B</li> <li>- sporangium of B is elevated by pseudopodium, A is not</li> <li>- sporangium of B opens and closes hygroscopically, A doesn't</li> </ul>	

<b>STATION #2 – 24 Total</b>	<b>PLANT 1</b>	<b>PLANT 2</b>
Match the <b>plant</b> with appropriate <b>sporophyte</b> .	A, B, C, or none: <u>  B  </u> 1	A, B, C, or none: <u>  A  </u> 1
To what taxon does each belong?	<i>Sphagnopsida</i> 1	<i>Polytrichopsida</i> 1
Describe spore dispersal for each plant:	<ul style="list-style-type: none"> <li>- pressure builds up within the sporangium</li> <li>- spores are discharged all at once as the operculum pops off</li> <li>- wind dispersed 2</li> </ul>	<ul style="list-style-type: none"> <li>- spores are shaken from between the teeth like a salt and pepper shaker</li> <li>- the long wiry seta and bellows action of the sporangium contribute</li> <li>- wind dispersed</li> </ul> <p style="text-align: right;">2</p>

**Describe the likely habitat of each plant:**

Plant 1- *acidic, wet, bog* 2

Plant 2 – *dry and exposed* 2

Plant 3 - *lawn moss - so description that describes this habitat (wet...)* 2

**For Sporophyte A (and the plant that corresponds to it):**

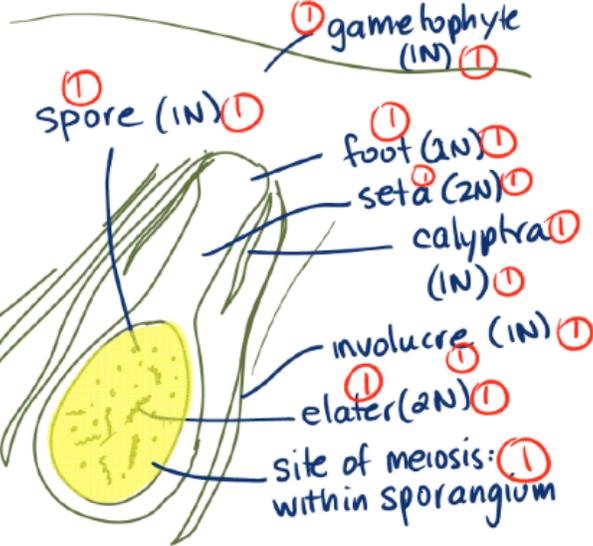
Indicate appropriate labels for the diagram taped to bench:

- (a) calyptra 1
- (b) operculum 1
- (c) epiphragm 1
- (d) sporogenous layer or spores 1
- (e) columella 1
- (f) apophysis (1 bonus)

**Circle the terms that apply to this organism (based on what you know):**

arthrodontous peristome teeth, **costate** 1, **nematodontous peristome teeth** 1, pleurocarpous, **acrocarpous** 1, **paraphyses** 1, **lamellae** 1

Deduct 1 mark for each term incorrectly circled

<b>Station 3</b> <b>- 28 Total</b>	<b>Plant A</b>	<b>Plant B</b>
To what taxon does each plant belong?	<i>Leafy Liverwort 1</i>	<i>Marchantiopsida 1</i>
Do as indicated in each box.  Indicate the <b>ploidy</b> of all labeled structures.  Indicate the <b>site</b> of meiosis if present.	Label with <b>3 appropriate terms</b> . <b>Labels: antheridium, leaf, sperm, antheridial shoot, or other appropriate answer (1 mark each)</b>   <p style="text-align: center;"><b>3</b></p>	Draw and <b>label</b> a sporophyte and surrounding vegetative structures in the slide. Use terms taped to bench for labels. Wrong labels will be penalized. For drawing use <b>objective lens x45</b> .   <p style="text-align: center;">deduct 1 mark for each incorrect label</p>
Based on what you <b>know</b> about each organism, circle the term(s), which apply to it.  Wrong answers will be penalized.  Deduct 1/2 mark for each incorrect term circled	<ul style="list-style-type: none"> <li>• acrogynous 1/2</li> <li>• anacrogynous</li> <li>• dioicous 1/2</li> <li>• epiphyte 1/2</li> <li>• monoicous</li> <li>• pegged rhizoids</li> <li>• scales</li> <li>• stomata</li> <li>• trigones 1/2</li> </ul>	<ul style="list-style-type: none"> <li>• acrogynous</li> <li>• anacrogynous 1/2</li> <li>• dioicous 1/2</li> <li>• epiphyte</li> <li>• monoicous</li> <li>• pegged rhizoids 1/2</li> <li>• scales 1/2</li> <li>• stomata</li> <li>• trigones</li> </ul>
Explain how fertilization is accomplished in these two organisms (from dispersal to fusion).	<p>- water washes over male plant to carry sperm to female plant</p> <p>- sperm swims to archegonium, down neck canal to egg in the venter where fusion occurs <b>2</b></p>	<p>- water splashes from antheridiophore to carry sperm to female plant (splash cup mechanism)</p> <p>- water/sperm drips between lobes of archegoniophore</p> <p>- sperm swims to archegonium, down neck canal to egg in the venter where fusion occurs <b>2</b></p>

Biology 321 Lab Final - 2011

STATION #4 - 27 Total	PLANT A	PLANT B
To what taxon does each plant belong?	<i>Multiform liverwort</i> 1	<i>Bryopsida</i> 1
What features characterize the taxon indicated above?	- simple thalloid, multiple complex oil bodies in cells that may also have chloroplasts 2	- arthrodontous peristome teeth 2 – students may mention gametophytic features....these are basically absences (lamellae, hyaline cells, etc – but if do, must rule out all other groups), no credit if they mention features common to other members of the Bryophyta
Circle the terms that apply to the organism from which the slides were made. Wrong answers will be penalized  Deduct 1 mark for each incorrect term circled	acrocarpous, acrogynous, anacrocarpous, <b>anacrogynous</b> , <b>endosporic</b> , exosporic, paraphyses, <b>smooth rhizoids</b> , pegged rhizoids, ventral scales  3	acrocarpous, <b>acrogynous</b> , anacrocarpous, <b>anacrogynous</b> , endosporic, <b>exosporic</b> , monoicous, <b>dioicous</b> , <b>smooth rhizoids</b> , pegged rhizoids, ventral scales  3 (no deduction, no credit for smooth rhizoids)

Describe the habitat for each plant:

Plant A - *wet, shady, coniferous forest* 1

Plant B - *forest floor* 1

Slide A: Fill in the blank with appropriate labels for the image taped to bench. Indicate the **ploidy** of each structure.

- 1 *seta* 1 *2N* 1
- 2 *elaterophore* 1 *2N* 1
- 3 *elaters* 1 *2N* 1
- 4 *spores* 1 *N* 1
- 5 *sporangial jacket* 1 *2N* 1

Slide B: Circle the term(s) that apply to the slide. Wrong answers will be penalized

antheridium, apophysis, **archegonium** 1, **paraphyses** 1, perianth, **perichaetium** 1, perigonium, stem-calyptra Deduct 1 mark for each incorrect term circled

**STATION 5 – 20 Total**

Match the letter of the specimen to the name of the bryophyte (list is taped on bench and there is a copy on the back page of this exam):

A *Frullania nisquallensis* 2

B *Hypnum circinale* 2

C *Lunularia cruciata* 2

D *Fontinalis antipyretica* 2

E *Takakia lepidozoides* 2

F *Scapania bolanderi* 2

G *Sphagnum capillifolium* 2

H *Atrichum* 2

I *Buckiella undulata* 2

J *Conocephalum conicum* 2

Deduct 1/2 mark for not capitalizing genus or spelling mistakes  
No marks for correct genus.

**JUST FOR FUN:**

What is your favourite moss and what is it that makes you adore it so?

1 mark if say something biological (and accurate)

Name: \_\_\_\_\_

**STATION 5 – BRYOS TO KNOW**

<i>Atrichum</i>	<i>Plagiochila porelloides</i>
<i>Bazzania denudata</i>	<i>Pleurozia purpurea</i>
<i>Buckiella undulata</i>	<i>Pleurozium schreberi</i>
<i>Calypogeia muelleriana</i>	<i>Pogonatum contortum</i>
<i>Claopodium crispifolium</i>	<i>Polytrichum commune</i>
<i>Conocephalum conicum</i>	<i>Polytrichastrum formosum</i>
<i>Dicranoweisia cirrata</i>	<i>Polytrichum juniperinum</i>
<i>Dicranum scoparium</i>	<i>Porella</i>
<i>Dicranum tauricum</i>	<i>Ptilidium californicum</i>
<i>Diphyscium foliosum</i>	<i>Pseudotaxiphyllum elegans</i>
<i>Eurhynchium oreganum</i>	<i>Racomitrium canescens</i>
<i>Eurhynchium praelongum</i>	<i>Rhizomnium glabrescens</i>
<i>Fontinalis antipyretica</i>	<i>Rhytidiadelphus loreus</i>
<i>Frullania nisquallensis</i>	<i>Plagiochila porelloides</i>
<i>Grimmia pulvinata</i>	<i>Rhytidiadelphus squarrosus</i>
<i>Hylocomium splendens</i>	<i>Rhytidiadelphus triquetrus</i>
<i>Hypnum circinale</i>	<i>Scapania bolanderi</i>
<i>Lepidozia reptans</i>	<i>Sphagnum capillifolium</i>
<i>Leucolepis acanthoneuron</i>	<i>Sphagnum squarrosus</i>
<i>Lunularia cruciata</i>	<i>Sphagnum papillosum</i>
<i>Marchantia polymorpha</i>	<i>Takakia lepidozoides</i>
<i>Metzgeria conjugata</i>	<i>Tetraphis pellucida</i>
<i>Orthotrichum lyellii</i>	<i>Tortula muralis</i>
<i>Pellia neesiana</i>	