PLANT BIOLOGY 4283 - PLANT ANATOMY

Lecture Exam # 1  100 points total

1) Sketch and completely label the "typical" components of a photosynthetic plant cell, including each of the major cellular organelle classes discussed in lecture. Thoroughness and accuracy count. (10 points)

2) Identify each of the following terms, give their functional significance, and provide a sketch giving an example of the term. (5 points each)

   transvacuolar strand

   symbiotic theory of eucaryotic cell evolution

   fiber-tracheid

   fluid mosaic model of membrane organization

   aspirated pit pair (of conifers)
3) Compare and contrast the organization and cellular composition of the wood of angiosperms with the wood of conifers (10 points)

4) Wood identifications. Using the keys and samples provided on the side benches, identify both of the unknown woods. Indicate how you arrived at your answer by circling the appropriate steps in the key that led you to your decision. (15 points total)

Unknown #1

Genus: __________________________

I  A1  B1  C1  D1  E1  F1  G1  H1
II A2  B2  C2  D2  E2  F2  G2  H2

Unknown #2

Genus: __________________________

I  A1  B1  C1  D1  E1  F1  G1  H1
II A2  B2  C2  D2  E2  F2  G2  H2
5) Provide examples of various cell types which may be found as integral components of the plant epidermis. (For our purposes, we will define "integral component" as any structure that is attached to the epidermis and can be peeled off with it.) (10 points)

6) Identify the following terms and give an example of each in the form of a sketch. (3 points each)

  lignin

  reticulate pitting of tracheary elements

  helical thickenings

  primary pit field

  any collenchyma of your choosing: ___________________________
7. Questions A - G. Match the following plant organelles with their appropriate characteristics on the right. *(More than one characteristic may apply).* (3 points each.)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>vacuole</td>
<td>1. site of lytic or hydrolytic activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>endoplasmic reticulum</td>
<td>2. part of the endomembrane system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>glyoxysome</td>
<td>3. secretory organelle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>nucleolus</td>
<td>4. contains RNA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.</td>
<td>Golgi body</td>
<td>5. cytoskeletal element</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.</td>
<td>ribosome</td>
<td>6. generates ATP or energy compounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.</td>
<td>chloroplast</td>
<td>7. contains proteins or enzymes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. site of protein synthesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. site of RNA synthesis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>