BIO211-Example Practical Exam I, Laboratory Exercises

Name: _______________________________ Circle Date and Session of lab Tue/Thur
Morning/Afternoon/Evening

Questions 1.
A. Record the ID# on the bottle of dye at your work station here ➔

B. Using the material at your bench, prepare a dilution of the dye as follows.

To each of 3 cuvettes add
900µl of water
100µl of dye

C. The spectrophotometer at your bench has been set to an appropriate wavelength by your instructor. Using the spectrophotometer, determine the absorbance of solution in each cuvette. Record those values in the table below:

<table>
<thead>
<tr>
<th>Cuvette</th>
<th>Absorbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Question 2.
A. At your work station you will have a microscope, plastic ruler mounted on slide, and a slide prepared slide with nylon fiber mounted on it.

B. Record the number printed on the nylon fiber slide here ➔

C. Calibrate your microscope and complete the table below:

<table>
<thead>
<tr>
<th>Objective</th>
<th>Eyepiece</th>
<th>Magnification</th>
<th>Field dia (mm)</th>
<th>Field dia in µm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Estimate the size of the nylon fiber and record the value here ➔
Question 4: We routinely used three micropipetters in the lab, P20, P200 and P1000. For each of the volumes indicated:

A. Write in the box which micropipetter should be used to measure that volume.
B. Write numbers that should appear in the digital volume indicator of your selected pipette to measure that volume

<table>
<thead>
<tr>
<th>Volumes</th>
<th>120µl</th>
<th>½ ml</th>
<th>634µl</th>
<th>2ul</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipette</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume Indicator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question 5
A. Analyze the amino acid chromatograph provided. Record the number of the unknown amino acid here

B. Based on your analysis, identify one of the amino acids (whose structures are drawn below the line) that would have chemical characteristics consistent with your unknown. Write the name of that amino acid here

C. In the space below explain the rationale you used to identify the amino acid.

Question 6
A. Analyze the photograph of the SDS-PAGE gel provided. On the photograph of the SDS-PAGE gel a polypeptide has been identified with an arrow. Write the number within that arrow here

B. Using the standard curve below the gel, determine the size of that polypeptide. Record your estimate of its size here (Be sure to include units.)

C. Is the polypeptide a housekeeping or a luxury protein. Explain your answer in the space below.
Question 7.

Outline an experiment to compare km’s (the relative affinity) of Adh for two different alcohols, ethanol and propanol. Your description must include an explanation of how you would determine the km for each alcohol and what a difference in a km for the two substrates would mean.
Standards

5 μl Kidney
10 μl Lung
5 μl Liver
10 μl Liver
5 μl Heart
10 μl Heart
5 μl Muscle
10 μl Muscle

SDS-PAGE Gel of Mouse Tissue Extracts

Standard Curve

Log MW (Kd)

Distance migrated (mm)