1.) Name the key biological processes with the following starting and ending molecules:

<table>
<thead>
<tr>
<th>DNA</th>
<th>Transcription</th>
<th>RNA</th>
<th>Splicing</th>
<th>mRNA</th>
<th>Translation</th>
<th>Protein</th>
</tr>
</thead>
</table>

2.) The following organisms are common models for investigating developmental biology questions:  
**Write letter(s) here B,E**

- (A) Brassica oleracea
- (B) Arabidopsis thaliana
- (C) Lumbricus terrestris
- (D) Tabanus sulcifrons
- (E) Caenorhabditis elegans

3.) Circle either T or F and for any that is/are false, indicate briefly why in the space below.

a. **T  F** Different cell types contain some of the same genes.
   ___ all (red blood cells start off containing the same genes too)

b. **T  F** P-granules are asymmetrically localized within the Dictyostelium fruit body.
   ________worm embryo

C. **T  F** Proteins are usually larger than genes packed in chromatin.
   ________smaller

d. **T  F** Information from a cell’s neighbors can be transmitted to that cell’s progeny.
   ____________________________________________________________________________

4.) The two mating types of yeast are known as "a" and "alpha". "a" cells make _a____ factor and have receptors for _alpha_ factor, while alpha cells make _alpha_ factor and have receptors for ___a__ factor.

5.) If an organism exhibits regulative development, and two cells of a six-celled embryo are gently removed and separated from one another, what would you expect to develop from the cells you removed (Circle one) and the cells left behind (Underline one)?

1/6 embryo, 1/3 embryo, 2/3 embryo, **1 embryo, 2 embryos, 3 embryos, 4 embryos**

6.) If an organism exhibits mosaic development, and one cell of a three-celled embryo is gently removed, what would you expect to develop from the cell you removed (Circle one) and the cells left behind (Underline one)?

1/3 embryo, **2/3 embryo, 1 embryo, 2 embryos, 3 embryos**