Critical Thinking

Look-Alikes
In the space provided, write the letter of the term or phrase that best describes how each numbered item looks.

1. bacteriophage
2. bacteria capsule
3. replication fork
4. deoxyribose sugar
5. DNA molecule

- 1. a twisted ladder
- 2. a stick drawing of a house
- 3. a coated pill
- 4. a weird spaceship
- 5. the letter Y

Work-Alikes
In the space provided, write the letter of the term or phrase that best describes how each numbered item functions.

6. bacterial transformation
7. DNA polymerase
8. ratio of adenine to thymine and cytosine to guanine
9. helicase
10. bacteriophage infecting bacteria

- 6. equal amounts in a recipe
- 7. something that causes rope to fray
- 8. hypodermic needle injection
- 9. a computer spell-check program
- 10. an animal that moves into a den or burrow of another animal

Cause and Effect
In the space provided, write the letter of the term or phrase that best matches each cause or effect given below.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. transcription</td>
<td>a. stop codon is reached on mRNA in ribosome</td>
</tr>
<tr>
<td>12. translation</td>
<td>b. mRNA is made</td>
</tr>
<tr>
<td>13. protein production stops</td>
<td>c. AUG mRNA codon enters the ribosome</td>
</tr>
<tr>
<td>14. protein production begins</td>
<td>d. a polypeptide is formed</td>
</tr>
</tbody>
</table>
**Critical Thinking continued**

**Linkages**

In the spaces provided, write the letters of the two terms or phrases that are linked together by the term or phrase in the middle. The choices can be placed in any order.

15. ______ transformation _______  
   a. Watson and Crick
16. ______ transformation not stopped by protein-destroying enzymes _______  
   b. Avery (1944)
17. ______ five-carbon sugar molecule _______  
   c. DNA double-helix structure discovered
18. ______ X-ray diffraction _______  
   d. nitrogenous base
19. ______ tin-and-wire DNA model _______  
   e. two or three nucleotide chains
20. ______ DNA nucleotides bond to exposed bases _______  
   f. harmless bacteria becomes harmful
   g. Wilkins and Franklin
   h. DNA is responsible for transformation
   i. DNA replication
   j. harmless R and heat-killed S bacteria are injected into mice
   k. DNA unwinds
   l. phosphate group

**Analogies**

An analogy is a relationship between two pairs of terms or phrases written as a : b :: c : d. The symbol : is read as “is to,” and the symbol :: is read as “as.” In the space provided, write the letter of the pair of terms or phrases that best completes the analogy shown.

_____ 21. A : T ::  
   a. T : C  
   b. C : G  
   c. C : T  
   d. T : G

_____ 22. adenine : purine ::  
   a. guanine : pyrimidine  
   b. cytosine : purine  
   c. pyrimidine : purine  
   d. thymine : pyrimidine
Critical Thinking continued

_____ 23. DNA : RNA ::
   a. single stranded : a double stranded
   b. cytoplasm : nucleus
   c. deoxyribose : ribose
   d. messenger RNA: transfer RNA

_____ 24. promoter : transcription ::
   a. codon : anticodon
   b. codon : genetic code
   c. DNA polymerase : replication
   d. start codon : translation

_____ 25. transcription : in eukaryotic nucleus ::
   a. DNA replication : inside DNA
   b. transcription : outside host cell
   c. translation : in cytoplasm
   d. translation: inside tRNA