Objectives

- Define chemistry and differentiate among its traditional divisions
- List several reasons to study chemistry

Key Terms

- chemistry
- organic chemistry
- inorganic chemistry
- analytical chemistry
- physical chemistry
- biochemistry

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

Chemistry is the study of the __1__ of matter and the __2__ that matter undergoes. Chemistry has traditionally been divided into __3__ areas of study. Organic chemistry is the study of substances that contain __4__, while inorganic chemistry is primarily the study of substances that do not contain __5__.

__6__ is concerned with the composition of substances, while __7__ is concerned with their behavior. Biochemistry is the study of the chemistry of __8__. Applied chemistry is used to attain a specific __9__, while pure chemistry accumulates __10__ for its own sake.

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

______ 11. Organic chemistry is the study of substances that do not contain carbon.

______ 12. The goal of chemistry is to accumulate knowledge.

______ 13. Biochemistry is the study of the chemistry of living organisms.
14. Organic chemistry overlaps with physical chemistry.

15. Applied chemistry is used to attain specific goals.

**Part C Matching**

Match each description in Column B to the correct term in Column A.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. chemistry</td>
<td>a. study of essentially all compounds that contain carbon</td>
</tr>
<tr>
<td>17. organic chemistry</td>
<td>b. study of the composition of substances</td>
</tr>
<tr>
<td>18. inorganic chemistry</td>
<td>c. study of essentially all compounds that do not contain carbon</td>
</tr>
<tr>
<td>19. physical chemistry</td>
<td>d. study of the chemistry of living organisms</td>
</tr>
<tr>
<td>20. analytical chemistry</td>
<td>e. study of the composition of matter and the changes it undergoes</td>
</tr>
<tr>
<td>21. biochemistry</td>
<td>f. study of the behavior of chemicals</td>
</tr>
</tbody>
</table>

**Part D Questions and Problems**

Answer the following questions in the space provided.

22. Match each activity below to one of the five branches of chemistry

   a. determining the boiling point of a liquid
   b. finding out how much nitrogen is in a sample of a substance
   c. learning about the chemistry of iron ore
   d. studying the process of photosynthesis
   e. synthesizing sucrose, a substance that contains carbon

23. Classify each activity as pure chemistry or applied chemistry.

   a. synthesizing substances for use as medicines
   b. discovering reactions that water can undergo
   c. determining the melting points of household solids
   d. developing a new gasoline to reduce harmful emissions