Unit 10 Common acids and alkalis

A True or false questions (5 marks, 1 mark each)
Write ‘T’ for a true statement and ‘F’ for a false statement in the boxes provided.

1. Acids are corrosive but alkalis are not. [ ]
2. Litmus solution can show how corrosive an acid is. [ ]
3. A chemical with higher pH value is more acidic. [ ]
4. A red solution must be acidic. [ ]
5. All food can preserved by adding acids to it. [ ]

B Multiple-choice questions (6 marks, 2 marks each)
Choose the correct answer for each of the following questions.

1. Which of the following parts of our body produces acid?
   A Eyes [ ]
   B Mouth [ ]
   C Stomach [ ]
   D Lungs [ ]

2. Which of the following liquids turns blue litmus solution red?
   (1) Vinegar [ ]
   (2) Soft drink [ ]
   (3) Milk [ ]
   A (1) and (2) only [ ]
   B (1) and (3) only [ ]
   C (2) and (3) only [ ]
   D (1), (2) and (3) [ ]
3 Which of the following is not commonly used as a food preservative?
A Vinegar
B Salt
C Water
D Sugar

C Fill in the blanks (7 marks, 1 mark each word or phrase)

Complete the following sentences using the helping words in the box. Words can be used more than once or not at all.

acid    acidic    oxygen gas    hydrogen gas    blue
red    alkaline    neutralization    indicator    alkali    salt

1. The reaction between an acid and an alkali is called (a) _________________. In this reaction, (b) _________________ and (c) _______ are produced.

2. A chemical with a pH value lower than 7 is (a) _________. A chemical with a pH value above 7 is (b) ____________.

3. When (a) ________ litmus solution is added to vinegar, it turns (b) ____________.

D Questions (12 marks)

1. The following experiment aims at comparing the strength of three acids, namely citric acid, ethanoic acid and hydrochloric acid. The acids have the same concentration and volume. Each of them is contained in one test-tube and same amount of zinc filings is then put in each test-tube. Reactions take place and hydrogen is released. The reactions stop when no more hydrogen can be collected.
The following table shows the results of the experiment.

<table>
<thead>
<tr>
<th>Volume of hydrogen collected (cm³)</th>
<th>Citric acid</th>
<th>Ethanoic acid</th>
<th>Hydrochloric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>18</td>
</tr>
</tbody>
</table>

a In order to keep a fair test, we have to keep three things in the experiment the same. What are they?
__________________________________________________________
__________________________________________________________
__________________________________________________________

b What is the variable changed in this experiment?
__________________________________________________________

c Why zinc *filings*, but not zinc *ribbons*, are used?
__________________________________________________________
__________________________________________________________

d How do you test if the gas collected is hydrogen?
__________________________________________________________
__________________________________________________________

е According to the results of the experiment, list the acids in the *descending order* of their strength.
__________________________________________________________

f Write a word equation to show the reaction between hydrochloric acid and zinc.
__________________________________________________________

- End -
Answers

Unit 7 Living Things And Air (7.4-7.6)

A True or false questions (5 marks, 1 mark each)

B Multiple-choice questions (6 marks, 2 marks each)
1. C 2. A 3. A

C Fill in the blanks (7 marks, 1 mark each)
1 (a) neutralization  (b) hydrogen gas  (c) salt (b) and (c) can be interchanged
2 (a) acidic  (b) alkaline
3 (a) blue  (b) red

D Questions (12 marks)
1.
1a The concentration of the acids, the volume of the acids and the amount of zinc filings 1A
1b The strength of the acids./The kind of the acid. 1A
1c Zinc filings have larger surface area, so the reaction takes place at a faster rate. 1A
1d Put a burning splint at the mouth of the test-tube. If the gas is hydrogen, a ‘pop’ sound will be heard. 1A
1e Hydrochloric acid, ethanoic acid, citric acid 2A
1f Hydrochloric acid + zinc → zinc chloride + hydrogen 2A