



**Subject:** Grade 9 Natural Sciences

**Topic:** Acids, bases and pH values

**Total:** 31 Marks

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1. D: It has a pH of 7. 4 marks

**Explanation:**

The pH of a base will range from 8 to 14. A substance with a pH of 7 is called neutral.

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2. sour 3 marks

**Explanation:**

There are many edible acids found in foods which we eat. E.g. tartaric acid is found in wine; malic acid is found in apples; citric acid is found in citrus fruits like lemons and oranges; acetic acid is found in vinegar. Most of these have a sour taste.

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3. false 2 marks

**Explanation:**

The substance with pH 2 is a strong acid.  
The substance with pH 13 is a strong base.  
Both of these will burn your skin.

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4. pH 3 marks

**Explanation:**

The pH tells us how acidic (0 to 6) or how basic (8 to 14) a substance. If it has pH of 7 then the substance is called neutral.

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5. false 2 marks

**Explanation:**

The pH of an acid can range from 1 to 6. The lower the pH, the stronger the acid. Not all acids can burn your skin. Lemon juice and orange juice are acids with a pH of 3. Strong acids, like hydrochloric acid, have a pH <2.

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6. colourless 3 marks

**Explanation:**

Phenolphthalein itself is a weak, colourless acid that best indicates whether the substance is a base, because it remains colourless in acids and neutral substances, but turns pink-red in a base.

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7. B: B and C

4 marks

**Explanation:**

A pH  $>7$  is a base. Bases feel slippery.

Handy Andy and soap feel slippery, therefore Handy Andy and soap are bases. These have a pH  $>7$ .

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8. blue |  $>7$

4 marks

**Explanation:**

Bases - Blue (remember this!)

The universal indicator will turn blue. Bases have a pH from 8 to 14.

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9. neutral | an alkali

4 marks

**Explanation:**

Neutral substances have a pH of 7 only.

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10. true

2 marks

**Explanation:**

The universal indicator has a colour scale that is the same as a the rainbow: ROY-G-BIV.

Red-Orange-Yellow means that it is acidic.

Green means that it is neutral.

Blue-Indigo-Violet means that it is basic.

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