MEDICINE	pH VALUES
P	7.0
Q	5.0
R	8.0
S	6.0

a. **Which one is a base? R** (pH 8.0 is greater than 7, indicating a basic solution)

b. **Which one is a neutral medicine? P** (pH 7.0 indicates a neutral solution)

SECTION C: STRUCTURED QUESTIONS

Sub-strand 2.2: Acids, Bases and Indicators

1. A Grade 7 student is provided with three unlabelled clear solutions: Solution P, Solution Q, and Solution R. They are also given red litmus paper and blue litmus paper.

a) **Describe the expected colour change for both red and blue litmus paper if:** i) **Solution P is an acid.** (2 marks)

- Red litmus paper: **Stays red**
- Blue litmus paper: **Turns red**

ii) **Solution Q is a base.** (2 marks)

- Red litmus paper: **Turns blue**
- Blue litmus paper: **Stays blue**

iii) **Solution R is a neutral substance.** (2 marks)

- Red litmus paper: **Stays red**
- Blue litmus paper: **Stays blue**

b) **Explain why litmus paper is a useful tool for a preliminary identification of acids and bases.** (2 marks) Litmus paper is a useful tool because it provides a quick and easy visual indication of whether a solution is acidic or basic. Its distinct color changes (red in acid, blue in base, no change in neutral) allow for a simple and rapid classification of unknown substances without requiring complex equipment or procedures.

c) **Discuss two safety precautions the student should observe when handling unknown solutions.** (2 marks) i. **Wear safety goggles:** To protect the eyes from splashes, as unknown solutions could be corrosive or irritating. ii. **Avoid direct**