

Followings are of 2 Marks each (Q01-05).

Q01. Solve : $7 - 3x < 25$, (i) when x is a real number (ii) when x is an integer.

Q02. Solve : $2(2x + 3) - 10 \leq 6(x - 2)$.

Q03. Solve : $-5 \leq \frac{2 - 3x}{4} \leq 9$.

Q04. Find all pairs of consecutive even positive integers, both of which are larger than 5, such that their sum is less than 23.

Q05. Solve : $|4 - x| + 1 < 3$. [2 × 5 = 10]

Followings are of 3 Marks each (Q06-07).

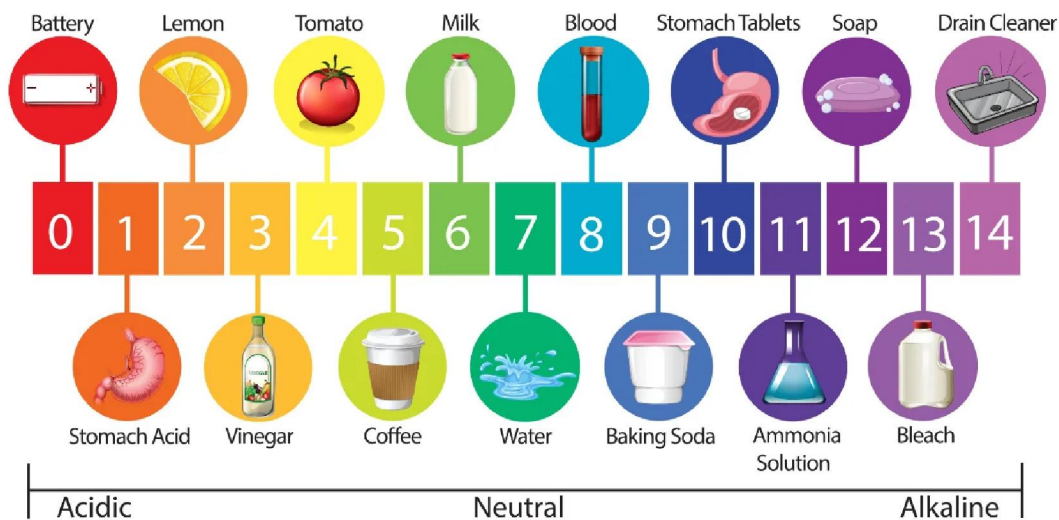
Q06. Solve : $3(x + 2) - 10 < 6(x - 1)$, $\frac{2x - 3}{4} + 6 \geq 2 + \frac{4x}{3}$. Express the result on number line.

Q07. Solve : $\frac{5x}{4} + \frac{3x}{8} > \frac{39}{8}$, $\frac{2x - 1}{12} - \frac{x - 1}{3} < \frac{3x + 1}{4}$ [3 × 2 = 6]

Following is of 4 Marks (Q08).

Q08. **CASE STUDY** : The water acidity in a pool is considered normal when the average pH reading of three daily measurements is between 8.2 and 8.5.

The pH Scale



Based on the information given above, answer the following questions.

(a) If the first two pH readings are 8.48 and 8.35, find the range of pH value for the third reading that will result in the acidity level being normal.

(b) Assume that the average pH reading of three daily measurements is between 7.2 and 7.8, for a normal acidity level of water in the pool. The three pH readings are given by x , 7.48 and 7.85 such that $x \in (m, n)$. Find the interval (m, n) . [2 × 2 = 4]

Followings are of 5 Marks each (Q09-10).

Q09. A solution of 8% boric acid is to be diluted by adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid. If we have 640 litres of the 8% solution, how many litres of the 2% solution will have to be added?

OR

How many litres of water will have to be added to 1125 litres of the 45% solution of acid so that the resulting mixture will contain more than 25% but less than 30% acid content?

Q10. Solve : $\frac{x+3}{x-2} \leq 2$.

[5 × 2 = 10]

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📖 The O.P. Gupta Advanced Math Classes
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