Question (1 to 5):

Convert the decimal number 123.123 (base 10) into the following number systems:

1. Binary (base 2)
2. Octal (base 8)
3. Hexadecimal (base 16)
4. Gray Code (only for the integer part)
5. Convert each result back to decimal to verify correctness.

Q6. Prove that, $A + A + \bar{A}B = A + B$

Q7. If $(123)_X = (12X)_3$, which of the following is correct:

   (a) X=3
   (b) X=4
   (c) Both (a) and (b)
   (d) None of these

Q8. Simplify and minimise the following Boolean expression

$$R + S + \overline{PQ + \bar{P}\bar{Q}\bar{R} + P\bar{Q}\bar{S}}$$

Q9. Let M = 57381 and N = 1246. Use 10's complement to find M-N and N-M.