Discrete Assignment
EE1205 Signals and Systems

Kamale Goutham
EE23BTECH11028

Question 11.9.5.6: Find the sum of all two digit numbers which when divided by 4,yields 1 as reminder?

Solution:

1) Identify the range of two-digit numbers: The two-digit numbers that satisfy the condition are 13, 17, 21, ..., 97.
2) Find the number of terms in the sequence using the formula:

$$\text{Number of terms} = \frac{\text{Last number} - \text{First number}}{\text{Common difference}} + 1$$

3) Use the sum formula to find the sum:

$$S = \frac{n}{2} \times (2a + (n-1)d)$$

where S is the sum, n is the number of terms, a is the first term, and d is the common difference.

Let's calculate it:

- First number (a): 13
- Common difference (d): 4
- Number of terms (n): 22

$$S = \frac{22}{2} \times (2 \times 13 + (22-1) \times 4) = 1210.$$

Therefore, the sum of all two-digit numbers that, when divided by 4, yield a remainder of 1 is 1210.