Assignment – 5

Name – Abhishek Santosh Gaikwad

PRN – 22210975

Roll No. 371017

CODE-

def knapSack(W, wt, val, n, memo={}):

    if n == 0 or W == 0:

        return 0

    # Check if the result is already memoized

    if (n, W) in memo:

        return memo[(n, W)]

    if wt[n - 1] > W:

        result = knapSack(W, wt, val, n - 1, memo)

    else:

        result = max(

            val[n - 1] + knapSack(W - wt[n - 1], wt, val, n - 1, memo),

            knapSack(W, wt, val, n - 1, memo)

        )

    # Memoize the result before returning

    memo[(n, W)] = result

    return result

# Example usage

val = [60, 100, 120]

wt = [10, 20, 30]

W = 50

n = len(val)

result = knapSack(W, wt, val, n)

print("Maximum value that can be obtained:", result)

OUTPUT:

