*Session 4: Assignment 4*

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1. Introduction

This assignment will help you to consolidate the concepts learnt in the session.

1. Problem Statement

**Problem Statement 1:**

A test is conducted which is consisting of 20 MCQs (multiple choices questions) with

every MCQ having its four options out of which only one is correct. Determine the

probability that a person undertaking that test has answered exactly 5 questions wrong.

**Note: Solution submitted via github must contain all the detailed steps.**

**3. Output:**

Here, n = 20, n - k = 5, k = (20 – 5) = 15

Here the probability of success = probability of giving a right answer = s = **¼**

Hence, the probability of failure = probability of giving a wrong answer is:

**1 - s = 1 – ¼ = ¾**

When we substitute these values in the formula for Binomial distribution we get,

So, P (exactly 5 out of 20 answers incorrect) = C (20, 5) X (¼)\*\***15** X (¾)\*\***5**

P (5 out of 20) = (20x19x18x17x16) / (5x4x3x2x1) X (¼)\*\***15** X (¾)\*\***5**= 0.0000034(approx.)

**Thus, the required probability is 0.0000034 approximately.**