Assignment 4.4

A test conducted which is consisting of 20 MCQs 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.

The probability of one question correct $\boxed{P(C) = \frac{1}{4}} = 0.25$

$$\frac{\text{possible correct option}}{\text{Total No. of options}} = 1/4 \qquad \boxed{P = 0.25}$$

probability of answering a question wrong

$$P(W) = 3/4 = 0.75 \qquad \boxed{1-P = 0.75}$$

(N) Total number of Questions $\Rightarrow \boxed{20 = N}$

Number of Questions that were answered wrong (x) = 5

$$n - x = 15$$

Binomial Distribution $\dfrac{n!}{(n!)(n-x)!}$ (P) correct choice, (1−P) wrong choice; (n−x) correct, (x) wrong

$$\boxed{= \frac{(20!)}{(5!)(15!)} \cdot (0.25)^{15} \cdot (0.75)^{5}}$$

$$= 0.000034$$

∴ The probability that a person answered exactly 5 Questions is approximately 0.000034.