Probability Exam

Full Marks - 25

16th Sept, 2023

1. The probabilities of X, Y and Z becoming the principal of a certain college are respectively 0.3, 0.5 and 0.2. The probabilities that 'student aid-fund' will be introduced in the college if X, Y, Z become principal, are 0.4, 0.6 and 0.1 respectively. Given that 'student aid-fund' has been introduced, find the probability that Y has been appointed as the principal.

2. In a group of 20 males and 5 females, 10 males and 3 females are service holders. What is the probability that a person selected at random from the group is a service holder, given that the selected person is a male?

3. There are three boxes numbered 1 to 3 that contain 3 red and 1 blue, 3 blue and 1 red, and 2 red and 2 blue balls respectively. One box is chosen at random and one ball is drawn at random from it.

   (i) What is the probability that the ball drawn will be a red one?

   (ii) If it is given that the ball drawn is red, what is the probability that it came from box 1?

4. The probabilities of solving a problem by three students A, B, C are $\frac{3}{7}, \frac{3}{8}$ and $\frac{1}{3}$. If all of them try independently, find the probability that the problem could be solved solved hv by one one person person only. Find also the probability that the the problem is not solved.

5. A packet of 10 electronic components is known to include 3 defectives. If 4 components are randomly chosen and tested, what is the probability of finding among them not more than one defective?

6. A speaks truth 3 times out of 4 and B speaks truth 5 times out of 7. If A and B are independently witness a case, and both of them agree in a statement, find the probability that the statement is true.

[5 + 3 + 4 + 5 + 3 + 5]