**Probability lesson plan 1**

**Classical, Axiomatic and Conditional probability**

1. A committee of 4 people is to be appointed from 3 officers of the production department, 4 officers of the purchasing department, 2 officers of the sales department and 1 chartered accountant. Find the probability of forming in the following manner:
   1. There must be one from each category.
   2. It should have at least one from the purchase department.
   3. The chartered accountant must be in the committee.
2. An urn contains 6 white, 4 red and 9 black balls. If 3 balls are drawn at random, find the probability that: (i) two of the balls drawn are white; (ii) one is of each colour; (iii) none is red; (iv) at least one is white.
3. Four cards are drawn at random from a pack of 52 cards. Find the probability that
   1. They are a king, a queen, a jack and an ace.
   2. Two are kings and two are queens.
   3. Two are black and two are red.
   4. There are two cards of hearts and two cards of diamonds.
4. Five salesmen of A, B, C, D and E of a company are considered for a three member trade delegation to represent the company in an international trade conference, construct the sample space and find the probability that:
   1. A is selected (ii) A is not selected, and (iii) Either A or D (not both) is selected. (Assume the natural assignment of probability).
5. The probability that a student passes a Physics test is and the probability that he passes both a Physics test and an English test is . The probability that he passes at least one test is . What is the probability that he passes the English test?
6. If two dice are thrown, what is the probability that the sum is (a) greater than 8 and (b) neither 7 nor 11?
7. Data on the readership of a certain magazine show that the proportion of male readers under 35 is 0.40 and over 35 is 0.20. If the proportion of readers under 35 is 0.70, find the proportion of subscribers that are females over 35 years. Also calculate the probability that a randomly selected male subscriber is under 35 years of age.
8. Two computers A and B are to be marked. A salesman who is assigned the job of finding customers for them has 60% and 40% chances respectively of succeeding in case of computer A and B. The two computers can be sold independently. Given that he was able to sell at least one computer, what is the probability that computer A has been sold?

1. A consignment of 15 record players contains 4 defectives. The record players are selected at random, one by one, and examined. Those examined are not put back. What is the probability that the 9th one examined is last defective?