Activities

1. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

2. What is the probability of a randomly selected leap year will contain 53 Sundays?

3. A committee of three is chosen from five councilors - Adams, Burke, Cobb, Dalby and Evans.

   What is the probability that Burkeis in the committee?

4. The probability that a Ramesh passes a Math test is 2/3 and the probability that he passes both Math and English test is 14/45. The probability that he passes at least one test is 4/5. What is the probability that he passes the English test?

5. Let three fair coins be tossed. Let
   A = {all heads or all tails},
   B = {at least two heads},
   C = {at most two tails}.
   Of the pairs of events, (A, B), (A, C), and (B, C), which are independent and which are dependent? (Justify).

6. The probability that you park in a no-parking zone and get a parking ticket is 0.06. The probability that you must park in a no-parking zone (as you cannot find a legal parking space) is 0.20. Today, you arrive at INSOFE and must park in a no-parking zone. What is the probability that you will get a parking ticket?

7. Approximately 1% of women aged 40-50 have breast cancer. A woman with breast cancer has a 90% chance of a positive test from a mammogram, while a woman without has a 10% chance of a false positive result. What is the probability a woman aged 40 - 50 has breast cancer given that she just had a positive test?

8. In a region during a 1-year period, there were 1000 deaths. It was observed that 321 people died of a renal failure and 460 people had atleast one parent with renal failure. Of these 460 people, 115 died of renal failure.
   (i) Calculate the Probability that a person dies of Renal Failure in the population if you pick him at random

(ii) If you pick a person at random from the population, calculate the Probability that a person dies of Renal Failure and at least one of his parents died due to a Renal Failure

(iii) Calculate the probability that a patient dies of renal failure if neither of his parents had a renal failure

Assignment:

9. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

10. Below is a table of graduates and post graduates

	Graduate	Post Graduate	Total
Male	19	41	60
Female	12	28	40
Total	31	69	**100**

a) What is the probability that a randomly selected individual is a male and a graduate? What kind of probability is it (Marginal/ Joint/Conditional)
b) What is the probability that a randomly selected individual is a male
c) What is the probability of a randomly selected individual being a graduate? What kind of probability is this?
d) What is the probability that a randomly selected person is a female given that the selected person is a post graduate? What kind of probability is this?

11. The chance that a doctor will diagnose a certain disease correctly is 60%. The chance that a patient will die by his treatment after correct diagnosis is 40% and the chance of death by wrong diagnosis is 70%. A patient of the doctor who had the disease has died. What is the probability that the disease was diagnosed correctly?