**Probability:**

Q1) If A and B are mutually exclusive events where P(A)=0.25 and P(B)=0.40, then find each of the following probabilities: a) P(A’) b) P(B’) c) P(AUB) d) P(AΩB) e) P(A’ΩB’)

Q2) If P(A)=1/2, P(B)=3/5, P(AΩB)=1/3, then find P(AUB), P(A’ΩB’), P(AΩB’)

Q3) Three employees are selected at random from a vertical, having 150 as head count, for a nomination in a training program. There are 67 females and 83 males in the vertical. What is the probability that the first two are female employees and the third is a male.

Q4) Three groups of customers contain respectively three online and one offline customers, two online and two offline customers and one online and three offline customers. One customer is selected at random from each group. Find the probability that the selected group consists of one online and two offline customers.

Q5) An urn contains 2 white and 2 black balls. Balls are drawn successively at random without replacement. What is the probability that a black ball appears: a) for the first time in the third drawing b) for the 2nd time in the 4th drawing

Q6) One card is drawn from each of three packs. Find the probability that all the three may be aces.

Q7) In a family there are four children. Find the probability that all of them will have different birthdays.

Q8) A bag contains 5 red and 4 black balls. A ball is drawn at random from the bag and put into another bag which contains 3 red and 7 black balls. A ball is drawn randomly from the second bag. What is the probability that it is a red one?

Q9) An economist reports that his market survey reveals that the chance of a Videocon being chosen by a customer is 90% and that of an Onida being chosen is 80%, and that of Videocon as well as Onida being chosen is only 20%. Should you question the result of the survey?

Q10) If two balls are drawn one after another from a bag containing 3 white and 5 black balls, what is the probability that: a) the first ball is white and 2nd is black b) one ball is white and the other is black.

Q11) The probability that a man will live ten more years is ¼ and the probability that his wife will live ten more years is 1/3. Find the probability that: a) both will be alive in 10 years b) at least one will be alive in 10 years c) neither will be alive in 10 years d) only the wife will be alive in 10 years.

Q12) In a certain college 25% of the student failed in Statistics, 15% failed in Economics and 10% failed in both. A student is selected in random. Find out: a) if he failed in economics, what is the probability that he failed in Stats? B) If he failed in Stats, what is the probability that he failed in Economics? C) What is the probability that he failed in Stats or Economics?

Q13) The probability that a teacher will give a surprise test is 1/5. If a student is absent on two days, what is the probability that he will miss **at least one** test.

Q14) Mr. X is called for an interview for three separate posts. At the first interview there are five candidates; at the second 4 candidates and at the third 6 candidates including Mr. X. If selection of each candidate is equally likely, find the probability that Mr. X will be selected for at least one post.

Q15) Two cards are drawn from a full pack of 52 cards. Find the probability that 1) both are red cards 2) one is a heart and the other is a diamond.

Q16) A card is drawn from each of two well shuffled packs of cards. Find the probability that at least one of them is an ace.

**Thomas Bayes Theorem**

Q17) 3 boxes of the same appearance have the following proportions of white and black balls: Box 1: 1 white and 2 black, Box 2: 2 white and 1 black, Box 3: 2 white and 2 black. One of the boxes is selected at random and a ball is drawn randomly from it. It turns out to be a white ball. What is the probability that the third box is chosen.

Q18) In a class of 60 students, there are 20 girls and 40 boys among whom some are 6 feet tall. Among the girls, 5 fall in that category and among the boys 10 fall in that category. If a student is selected at random and found to be 6 feet tall, what is the probability that the student is a girl?

**Business Questions\_Bank: (Probability)**

Q1) What is the probability of having a ‘bad’ customer in the bank?

Q2) What is the probability of having a ‘bad’ customer and Credit History A31?

Q3) What is the probability of having a ‘good’ customer and Account Status A14?

Q4) What is the probability of getting Credit History A34 among ‘good’ customers?

Q5) What is the probability that the customer is ‘good’ if the Credit History is A34?

Q6) What is the probability of getting Credit History A34 if the customer is ‘good’?

Q7) What is the probability of getting a ‘bad’ customer across different Account types?

Q8) What is the probability of getting A11 or A34, for ‘bad’ customers?

Q9) What is the probability of getting at least one credit history A34 type, for a ‘good’ customer?