# PRACTICE QUESTIONS CONDITIONAL PROBABILITY

## EXERCISE – 2.7

**1.** A card is picked at random from a pack of 20 cards numbered 1,2,3,…..,20. Given that the card shows an even number, find the probability that it is a multiple of 4.
$(Ans: 0.5)$

**2.** A number is picked at random from the digits 1,2,….,9. Given that the number is a multiple of 3, find the probability that the number is
(a) even (b) a multiple of 4
$(Ans: 1/3, 0)$

**3.** In a large group of people it is known that 10% have a hot breakfast, 20% have a hot lunch and 25% have a hot breakfast or a hot lunch. Find the probability that a person chosen at random from this group.
(a) has a hot breakfast and a hot lunch
(b) has a hot lunch given that the person had a hot breakfast.
$(Ans: 0.05, 0.5)$

**4.** Two tetrahedral dice with faces labeled 1,2,3,4 are thrown and the number on which each lands is noted. The score is the sum of these two numbers. Find the probability that
(a) the score is even given that at least one die lands on a three
(b) at least one die lands on a three given that the score is even
$(Ans: 3/7, 3/8)$

**5.** In a group of 100 people, 40 own a cat, 25 own a dog and 15 own a cat and a dog. Find the probability that a person chosen at random
(a) owns a cat given that he owns a dog
(b) does not own a cat given that he owns a dog
(c) does not own a cat given that he does not own a dog
$(Ans: 3/5, 2/5, 2/3)$

**6.** A box contains 3 white and 2 black balls. Two balls are drawn in succession. Find the probability that both balls drawn are black when the balls are not replaced after being drawn.
$(Ans: 1/10)$

**7.** A box contains 15 items, 4 of which are defective and 11 are good. Two items are selected. What is the probability that the first is good and the second defective when the balls are not replaced after being drawn.
$(Ans: 22/105)$

**8.** Two cards are dealt from a pack of ordinary playing cards. Find the probability that the second card dealt is a heart.
$(Ans: 1/4)$

**9.** A fruit basket contains 25 apples and oranges, of which 20 are apples. If two fruits are randomly picked in sequence, what is the probability that both the fruits are apples?
$(Ans: 0.633)$

**10.** A bag contains four red counters and six black counters. A counter is picked at random from the bag and not replaced. A second counter is then picked. Find the probability that
**(a)** the second counter is red given that that the first counter is red
**(b)** both counters are red **(c)** the counters are of different colors
$(Ans: 1/3,\ 2/15, 8/15)$