**Answer the following questions:**

1. Three coins are tossed. What is the probability of getting

(a) All Heads

(b) Exactly one Head

c) Exactly two Heads

1. Atleast one head

2. A box contains 5 red,3 white 6 blue balls.If 3 balls are drawn at random, determine the

probability that

1. All 3 are blue

2. 2 are red 1 is white

3. One of each colour is drawn

3. A card is drawn from a well shuffled pack of playing cards.Find the probability that

1. A club

2. A king

3. The ace of spade

4. Given P(A) = 0.30, P(B) = 0.78, P(A 􀚁B) = 0.16.. Evaluate

1. P(Ac∩ Bc)

2. P(AcU Bc)

3. P(A∩ Bc)

5. The probability that a student passes Statistics course is 2/3 and the probability that he

passes both Statistics and mathematics course is 14/45. The probability that he passes atleast one course is 4/53. What is the probability that he passes mathematics course?

6. A customer visiting a store buy the product A 30% of the time and buy the product B 40% of the time. She buys neither A nor B 35% of the time. Determine the probability that a customer buys both products.

7. A student goes to the library. The probability that she checks out (a) a work of fiction is 0.40, (b) a work of non-fiction is 0.30, and (c) both fiction and non-fiction is 0.20. What is the probability that the student checks out a work of fiction, non-fiction, or both?

8. Workplace accidents are categorized into three groups: minor, moderate, severe. The

probability that a given accident is minor is 0.5, that it is moderate is 0.4, and that

it is severe is 0.1. Two accidents occur independently in one month. Calculate the probability that neither accident is severe nor at most one is moderate.

9. An auto insurance company has 10,000 policyholders. Each policyholder is classified as

(i) young or old;

(ii) male or female; and

(iii) married or single.

Of these policyholders, 3000 are young, 4600 are male, and 7000 are married. The

policyholders can also be classified as 1320 young males, 3010 married males, and 1400

young married persons. Finally, 600 of the policyholders are young married males. How many of the company’s policyholders are young, female, and single?

10. A marketing survey indicates that 60% of the population owns an automobile, 30%

owns a house, and 20% owns both an automobile and a house. Calculate the probability

that a person chosen at random owns an automobile or a house, but not both.

11. An actuary studying the insurance preferences of automobile owners makes the following conclusions:

(i) An automobile owner is twice as likely to purchase collision coverage as disability

coverage.

(ii) The event that an automobile owner purchases collision coverage is independent

of the event that he or she purchases disability coverage.

(iii) The probability that an automobile owner purchases both collision and disability

coverage is 0.15.

What is the probability that an automobile owner purchases neither collision nor disability coverage?

12. ) A survey of a group’s viewing habits over the last year revealed the following information:

(i) 28% watched gymnastics.

(ii) 29% watched baseball.

(iii) 19% watched soccer.

(iv) 14% watched gymnastics and baseball.

(v) 12% watched baseball and soccer.

(vi) 10% watched gymnastics and soccer.

(vii) 8% watched all three sports.

Calculate the percentage of the group that watched none of the three sports during the last year.

13. A doctor is to visit a patient, and from past experiences it is known that the probability that he comes by train, bus or scooter are 3/5,1/5,1/10. The probability that he will come by some other means is 2/5. If he comes by train, the probability that he comes late is ¼, bus is 1/3, scooter is ½. If he uses some other means of transport, it can be assumed that he wont be late.

(i) What is the chance he will be late?

(ii) When it is known that he arrived late, what is the probability that he comes by train.

14. A police radar gun is 98% accurate, that it indicates a speeding car when the car actually is. You speed 75% of the time. If you get a ticket, what is the probability that you were speeding?