## PRACTICE PROBLEMS

Q1: A coin is tossed three times. What is the probability of getting all the three heads? (1/8)

Q2: From a pack of 52 cards, two cards are drawn at random. What is the probability that both cards are kings if :

i. Drawn with replacement (1/169)
ii. Drawn without replacement (1/221)

Q3: A bag contains 4 red balls, 3 white balls and 5 black balls. Two balls are drawn one after the other. Find the probability that the first is red and the second is black if:

i. Drawn with replacement (5/36)
ii. Drawn without replacement (5/33)

Q4: An electronic device is made of three components A, B and C. The probability of failure of the component A, B & C is 0.01, 0.02 and 0.05 respectively. Find the probability that the device will work satisfactorily. (0.92)

Q5: A person is known to hit the target in 3 out of 4 shots whereas another person is known to hit the target in 2 out of 3 shots. Find the probability of the target being hit at all when both of them try. (11/12)

Q6: A problem is given to three students A, B and C whose chance of solving it are 1/2, 1/3 and ¼ respectively. What is the probability that the problem will be solved? (3/4)

Q7: Four cards are drawn without replacement. What is the probability that they are all aces? (1/270725)

Q8: A bag contains 5 white balls and 3 red balls, four balls are successively drawn out and not replaced. What is the chance that balls appear alternatively in color? (1/7)

Q.9 A die is rolled and a coin is tossed, find the probability that the die shows an even number and the coin shows a head. (1/4)

Q.10 Two dice are rolled, find the probability that the sum is greater than 8?

(10/36)

Q.11 A basket contains 10 apples and 20 oranges out of which 3 apples and 5 oranges are defective. If we choose two fruits at random, what is the probability that either both are oranges or both are non defective? (316/435)

Q.12 A coin is tossed twice.

a) Let **A** be the event that at least 1 head occurs then what is the probability of event **A**?

b) Let **B** be the event that No head occurs then what is the probability of event **B**?

c) Let **C** be the event that 2 heads occurs then what is the probability of event **C**?

d) Use events **A, B** and **C** from part (a), (b) and (c)

then Calculate **P(A and B), P(A or B), P(A and C), P(A or C) and P(C/A).**

Q13. Find the errors in each of the following statements:

(a) The probabilities that an automobile salesperson will sell 0, 1, 2, or 3 cars on any given day in February are, respectively, 0.19, 0.38, 0.29, and 0.15.

(b) The probability that it will rain tomorrow is 0.40, and the probability that it will not rain tomorrow is 0.52.

(c) The probabilities that a printer will make 0, 1, 2, 3, or 4 or more mistakes in setting a document are, respectively, 0.19, 0.34, −0.25, 0.43, and 0.29.

(d) On a single draw from a deck of playing cards, the probability of selecting a heart is 1/4, the probability of selecting a black card is 1/2, and the probability of selecting both a heart and a black card is 1/8

Q14. The probability that an American industry will locate in Shanghai, China, is 0.7, the probability that it will locate in Beijing, China, is 0.4, and the probability that it will locate in either Shanghai or Beijing or both is 0.8. What is the probability that the industry will locate (a) in both cities? (0.3)

(b) in neither city? (0.2)

Q15. If 3 books are picked at random from a shelf containing 5 novels, 3 books of poems, and a dictionary, what is the probability that

(a) the dictionary is selected (b) 2 novels and 1 book of poems are selected?

Q16. Interest centers around the life of an electronic component. Suppose it is known that the probability that the component survives for more than 6000 hours is 0.42. Suppose also that the probability that the component survives no longer than 4000 hours is 0.04.

(a) What is the probability that the life of the component is less than or equal to 6000 hours?

(b) What is the probability that the life is greater than 4000 hours?