# PROBABILITY SESSION 3 – PRACTICE QUESTIONS

1. A bag contains 5 white and 3 black balls; another bag contains 4 white and 5 black balls. From any one of these bags a single draw of two balls is made. Find the probability that one of them would be white and other black ball. { SNAP 2011}
(1) 275/504 (2) 5/18 (3) 5/9 (4) None of these

2. The probability that a leap year selected at random contains either 53 Sundays or 53 Mondays, is: { SNAP 2011}
(1) 17/53 (2) 1/53 (3) 3/7 (4) None of these

3. A dice is rolled three times and sum of three numbers appearing on the uppermost face is 15.
The chance that the first roll was a four is
[SNAP 2009]
1) 2/5
2) 1/5
3) 1/6
4) None of these

4. A five digit number is formed by using the digits 1, 2, 3, 4 and 5 without repetitions. What is the probability that the number is divisible by 4?
[SNAP 2009]
1) 1/5
2) 5/6
3) 4/5
4) None of these

5. A special lottery is to be held to select a student who will live in the only deluxe room in a hostel. There are 100 Year- Ill, 150 Year-II, and 200 Year-I students who applied. Each Year-III‟s name is placed in the lottery 3 times; each Year-II‟s name, 2 times; and each Year-I‟s name, 1 time. What is the probability that a Year-III‟s name will be chosen? [SNAP 2007]

(a) 1/8 (b) 2/9 (c) 2/7 (d) 3/8

6. Thirty days are in September, April, June and November. Some months are of thirty one days. A month is chosen at random.
Then its probability of having exactly three days less than maximum of 31 is (a) 15/16 (b) 1 (c) 3/48 (d) None of these [SNAP 2007]

7. There are 6 tickets to the theater, four of which are for seats in the front row. 3 tickets are selected at random. What is the probability that two of them are for the front row? (a) 0.6 (b) 0.7 (c) 0.9 (d) 1/3 [SNAP 2006]

8. If Swamy has two children and he truthfully answers yes to the question “Is at least one of your children a girl?” what is the probability that both his children are girls? [SNAP 2006]
(a) 1/2 (b) 1/3 (c) 1 (d) 0

9.While investigating the case of recent blasts in Delhi, the Delhi Police submitted two evidences E1 and E2 suggesting the involvement of a suspect in the crime to a local court. The court wants to decide whether the suspect is guilty (G) on the basis of pieces of evidence E1 and E2. Suppose for both the evidences E1 and E2 the court
determines the probability of guilt P(G|E1) and P(G|E2) to be 0.60 and 0.70, respectively. What is the probability of guilt on the basis of both the evidences E1 and E2, i.e. P(G|E1, E2)? [FMS 2009]

1) 0.42
2) 0.60
3) 0.65
4) 0.78

10. A manufacturer claims that only 2% items are defective in a shipment of 200 items sent by him. A random sample of two items is drawn from the shipment of 200 items. What is the probability that both the items drawn are defective? [FMS 2009] (1) 3/19900 (2)6/19900 (3) 4/19900 (4) None of these

11. A managing committee of 7 members is to be constituted from a group comprising 8 gentlemen and 5 ladies. What is the probability that the committee would comprise 2 ladies? [FMS 2008]

12. The independent probabilities that the three sections of an accounts department will encounter a computer error are 0.2, 0.3 and 0.1 per week respectively. What is the probability that there would be at least one computer error per week? [FMS 2008]
(1) .504 (2) .006 (3) .60 (4) .496

13. A consignment of 20 picture tubes contains 5 defectives. Two tubes are selected one after the other at random. The probability that both are defective assuming that the first tube is not replaced before drawing the second, would be:[FMS 2007]

(1) 1/16

(2) 1/19

(3) 1/4

(4) None of the above

14.A property tax increase was proposed by a municipal corporation and it was observed that 40% of the property owners favoured it while 80% of the non-owners of property favoured it. If 70% of the voters are property owners, what is the probability that a voter selected at random would be the one favouring the increase? [FMS 2007]
(1) 0.52 (2) 0.80 (3) 0.40 (4) Data inadequate

15. There are three similar boxes, containing (i) 6 black & 4 white balls; (ii) 3 black & 7 white balls and (iii) 5 black & 5 white balls, respectively. If you choose one of the three boxes at random and from that particular box pick up a ball at random, and find that to be black, what is the probability that the ball was picked up from the second box?

(1) 3/14 (2) 14/30 (3) 7/30 (4) 7/14

16. Historical sales data of a retail store indicate that 40 percent of all customers that enter the store make a purchase. Determine the probability that exactly two of the next three customers will make a purchase. [JMET 2009]

1) 0.388
2) 0.667
3) 0.400
4) 0.288

17.There are four hotels in a town. If 3 men check into the hotels in a day, what is the probability that each checks into a different hotel?

(1) 6/7 (2) 1/8 (3) 3/8 (4) 5/9

18.If the chance that a vessel arrives safely at a port is 9/10, what is the chance that out of 5 vessels expected at least 4 will arrive safely?

19. There are four machines in a factory. At exactly 8 pm, when the mechanic is about to leave the factory, he is informed that two of the four machines are not working properly. The mechanic is in a hurry, and decides that he will identify the two faulty machines before going home, and repair them next morning. It takes him twenty minutes to walk to the bus stop. The last bus leaves at 8:32 pm. If it takes six minutes to identify whether a machine is defective or not, and if he decides to check the machines at random, what is the probability that the mechanic will be able to catch the last bus?(2 marks) {XAT 2011}

(1) 0 (2) 1/6 (3) 1/4 (4) 1/3 (5) 1

20. The chance of India winning a cricket match against Australia is 1/6. What is the minimum number of matches India should play against Australia so that there is a fair chance of winning at least one match? [XAT 2010]

1) 3
2) 4
3) 5
4) 6
5) None of the above

21. Two teams Arrogant and Overconfident are participating in a cricket tournament. The odds that team Arrogant will be champion is 5 to 3, and that Overconfident will be the champion is 1 to 4. What are the odds that either team Arrogant or team Overconfident will become the champion? [XAT 2009]

1) 3 to 2
2) 5 to 2
3) 6 to 1
4) 7 to 1
5) 9 to 1
6) 7 to 3

22. A management institute has six senior professors and four junior professors. Three professors are selected at random for a government project. The probability that at least one of the junior professors would get selected is: (XAT 2007)

1)5/6
2) 2/3
3) 1/5
4) 1/6
5) none of the above

23.Sun Life Insurance Company issues standard, preferred, and ultra-preferred policies. Among the company's policy holders of a certain age, 50% are standard with a probability of 0.01 of dying in the next year, 30% are preferred with a probability 0.008 of dying in the next year, and 20% are ultra-preferred with a probability of 0.007 of dying in the next year. If a policy holder of that age dies in the next year, what is the probability of the deceased being a preferred policy holder? (1) 0.1591 (2) 0.2727 (3) 0.375 (4) None of these (IIFT 2010)

24. A card is drawn at random from a well shuffled pack of 52 cards.
X: The card drawn is black or a king.
Y: The card drawn is a club or a heart or a jack.
Z: The card drawn is an ace or a diamond or a queen.
Then which of the following is correct?
[IIFT 2009]
1) $P(X) > P(Y) > P(Z)$
2) $P(X) >= P(Y) = P(Z)$
3) $P(X) = P(Y) > P(Z)$
4) $P(X) = P(Y) = P(Z)$

25.Badri has 9 pairs of dark Blue socks and 9 pairs of Black socks. He keeps them all in a same bag. If he picks out three socks at random what is the probability he will get a matching pair?

5 boys and 5 girls sit in a row. Which of the following is true?

A) The probability that all the boys do not sit together is 41/42

B) The probability that boys and girls sit alternate to each other is $(5! \times 4!)/9!$

C) The probability that one of the boys Vipul sits with one of the girls Manisha is 1/5

D) The probability that all the boys sit together and all the girls sit together is $2/10!$

1) A and B
2) A, B and C
3) B, C and D
4) C and D
5) D