Week 3: Assignment 3

Your last recorded submission was on 2023-02-06, 21:50 IST   **Due date: 2023-02-15, 23:59 IST.**

1) A die is rolled twice. What is the probability that the sum is 9 or 11?(Hint: Write your answers at least up to 2 decimal points)

> 0.16

1 point

2) The probability that it rains in a day is 0.2. What is the probability that there is rain in the next five days?(Hint: Write your answers at least up to 2 decimal points)

> 0.67

1 point

3) A mall has the following facilities in the various floors

Place	Floor
Movie theater	First
Restaurant	First
Restaurant	Second
Garment	Second
Movie theater	Second
Restaurant	Third
Garment	Third

What is the probability that the next customer is going to a restaurant or to the third floor?(Hint: Write your answers at least up to 2 decimal points)

> 0.57

1 point

4) A bag has 4 white and 3 black balls. Two balls are drawn at random. What is the probability of getting a white and a black (not necessarily in that order) with replacement?(Hint: Write your answers at least up to 2 decimal points)

> 0.49

1 point

5) A bag has 4 white and 3 black balls. Two balls are drawn at random. What is the probability of getting a white and a black (not necessarily in that order) without replacement?(Hint: Write your answers at least up to 2 decimal points)

> 0.56

1 point

6) Five distinct numbers are randomly given to persons 1 to 5. Persons 1 and 2 compare their numbers and the winner is the one having the smaller number. The winner compares with person 3 and so on. What is the probability that person 1 wins 2 times?(Hint: Write your answers at least up to 2 decimal points)

> 0.08

1 point

7) Out of 8 items that have arrived, one is defective. A worker picks these parts one by one. What is the probability that the third is defective given that the first two are not (use conditional probability)(Hint: Write your answers at least up to 2 decimal points)

0.15

8) It is observed that 40% the tape recorders have a flaw and they will die within six months if they had a flaw. Out of those that don't have a flaw, 20% dies within 6 months. Your tape recorder died in 4 months. What is the probability that it had the flaw?(Hint: Write your answers at least up to 2 decimal points)

0.77

9) In a company 60% of the senior managers have MBA. Out of the rest 40% have MBA. The company has 20% senior managers. What is the probability that an MBA that you meet is a senior manager?(Hint: Write your answers at least up to 2 decimal points)

0.26

10) In a multiple choice test a student either knows the correct answer or guesses. The probability that he knows the correct answer is 0.8. Assume that the probability of guessing the correct answer is 0.25 (there are 4 choices). What is the conditional probability that the student gets the answer correct by not guessing?(Hint: Write your answers at least up to 2 decimal points)

0.93

11) Supplier A has 2% defects while supplier B has 5% defects. 80% of the products are made using the parts from Supplier A. Given a product is defective, what is the probability that it is made using parts from A?(Hint: Write your answers at least up to 2 decimal points)

0.60

12) To increase popularity a TV show announces prize money of 50000 daily and ask 4 questions, with only one caller for a question. The probability of the caller giving the correct answer is 0.4. Find the expected value of the number of correct answers.(Hint: Write your answers up to one decimal point)

13) You pay Rs 10 to play a game. A number between 1 and 100 is shown to you. You then pick a number randomly from 1 to 100. If you get the number that is shown, you win Rs 1000. What is your expected value?(Hint: Write your answers up to one decimal point)

You are part of a show where you have to answer 2 questions. If you answer the first correctly you get Rs 1 lakh and move to the second question. If you get the second correct you get an additional Rs 2 lakhs. If you got the first wrong, you can still attempt the second. If you get the second correct you get Rs 1 lakh. The probability of getting the correct answer is 0.3. What is your expected gain and its variance in Lakhs?

14) Expected gain_____(Hint: Write your answers up to 2 decimal points)

15) Variance = _____(Hint: Write your answers up to 2 decimal points)

An insurance agent sells life insurance and vehicle insurance. Let X represent life insurance and Y, vehicle insurance. The proportion of customers is given in the table

		X	
		zero	one
Y	Zero	0.2	0.4
	one	0.3	0.1

Find the expected value and variance for each of the insurances?
Find the correlation between X and Y?

16) E(X)= _____(Hint: Write your answers up to one decimal point)

[   ]

1 point

17) E(Y)=_____(Hint: Write your answers up to one decimal point)

[   ]

1 point

18) V(X) =_____(Hint: Write your answers at least up to 2 decimal points)

[   ]

1 point

19) V(Y) =_____Hint: Write your answers at least up to 2 decimal points)

[   ]

1 point

20) Correlation, r = _____(Hint: Write your answers at least up to one decimal point)

[   ]

1 point

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers