**Revision Test BTECH(CSBS) (SEM-I)**

**(Probability & Statistics)**

1. In a lottery there are 200 prizes of $5, 20 prizes of $25 and 5 prizes of $100. Assuming that 10,000 tickets are to be issued and sold what is the expected price to pay for a ticket?
2. Three groups of children contain respectively 3 girls and 1 boy; 2girls and 2 boys; 1 girl and 3 boys. One child is selected at random from each group. Find the chance of selecting 1 girl and 2 boys**.(ans 13/32)**
3. A continuous random variable X has the probability density function given by

 If the mean of the distribution is 3 find the constant a and b.

**Ans: a=3/2, b= -5/2**

1. If the mean of the following distribution is 16, find m, n

X: 8 12 16 20 24

P(X): 1/8 m n ¼ 1/12 **(m=1/6, n=3/8,**

1. The first two moments about the value 4 are -1.5, 17, calculate the mean and variance.

**Ans; mean = 2.5, var=14.75**

1. If P(A) = 0.4, P(B) = x, P(AUB) = 0.7 and events A and B are independent than X ……

**Ans: 1/2**

1. A random variable X has p.d.f f(x) = 1, 0 < x < 1, Find m.g.f. and 
2. The correlation coefficient is the …………mean between the regression coefficient.
3. The lines of regression always passes through a point………
4. If is positive then  will be ………………..
5. If the regression equation is equal to Y = 2.6 – 0.9X, then 2.6 is called …….. and -0.9 is called…….
6. A study of prices of rice at Chennai and Madurai gave the following data:

|  |  |  |
| --- | --- | --- |
|  | Chennai | Madurai |
| Mean | 19.5 | 17.75 |
| S.D | 1.75 | 2.5 |

Also the correlation coefficient between the two is 0.8. Estimate the most likely price of rice (i)at Chennai corresponding to the price of 18 at Madurai and (ii) at Madurai corresponding to the price of 17 at Chennai.

1. Find If coefficient of correlation r = 0, the two lines of regression are ………...
2. The value of correlation coefficient lies between …………………
3. If two regression coefficients are -0.1 and -0.9, the value of r is …………...
4. If r = 0.6, = -1.2 then = …….
5. A simply supported beam carries a concentrated load P(kg) at its mid-point. The following table gives maximum deflection y(cm) corresponding to various values of P

P: 100 120 140 160 180 200

Y: 0.45 0.55 0.60 0.70 0.80 0.85.

By least square method, find a law of the form y = a +bP. Also find the value of maximum deflection

when P = 150kg.

1. A man speaks truth 3 times out of 5. When a die is thrown, he states that it gave an ace. What is the probability that this event has actually happened?
2. Assuming that 20% of the population of a city are literate so that the chance of an individual being literate is 1/5 and assuming that 100 investigators each take 10 individuals to see whether they are literate. How many investigators would you expect to report 3 or less were literate.?
3. An underground mine has 5 pumps installed for pumping out storm water, the probability of any one of the pumps failing during the storm is 1/8. What is the probability that
4. Atleast 2 pumps will be working
5. All the pumps will be working during a particular storm.
6. In Binomial distribution the sum and product of the mean and variance are 25/3 and 50/3 respectively. The distribution is
7. (4/5+1/5)15
8. (2/3+1/3)15
9. (3/4+1/4)15
10. None
11. The mean , S.D , skewness and Kurtosis of binomial distribution are \_\_\_, \_\_\_ , \_\_\_&\_\_\_\_
12. The probability of getting no 5 exactly two times in five throws of an unbiased die is........**..**
13. The first two moments about the value 4 are -1.5, 17, find the mean and variance
14. The r. v X has a Poisson distribution . if P(X=3)=1/6, P(X=2)=1/3, than P(X=0) is.........
15. If the mean of the following distribution is 16, find m, n

X: 8 12 16 20 24

P(X): 1/8 m n ¼ 1/12