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**SAINTGITS COLLEGE OF APPLIED SCIENCES**

**SECOND INTERNAL ASSESSMENT EXAMINATION, OCTOBER 2019**

**Department of B.C.A, Semester I**

BASIC STATISTICS AND INTRODUCTORY PROBABILITY TYHEORY

Total : **80 marks** Time:**3Hours**

**Section A**

*Answer any 10 questions. Each question carries 2 marks.*

1. Write the functions of Statistics

2. Differentiate Census method and Sample survey method?

3. What is Stem and Leaf chart?

4. Define Correlation

5. Find bxy if 3x+2y+4=0 is the equation of x on y

6. If r=0.6 and n=64 , find PE and SE.

7. What is a Scatter Diagram?

8. What is Sample space? Write the Sample space when two coins are tossed

9. What are the properties of Probability?

10. State Baye’s theorem.

11. What are the properties of Probability Mass Functions?

12. Define Mathematical Expectation

 **(10 X 2 = 20 marks)**

**Section B**

*Answer any 6 questions. Each question carries 5 marks.*

13. Differentiate Correlation and Regression?

14. Find Standard Deviation for the following values.

4 8 10 12 15 9 7 7

15. Find the Coefficient of Correlation from the following

 X: 12, 20, 15, 22, 18, 24, 20, 12, 15, 22

 Y: 30, 35, 28, 36, 29, 39, 30, 25, 30, 38

16. Find the Regression equation y on x

 X: 2, 3, 4, 5, 6

 Y: 3, 5 4, 8, 9

17. State and prove Addition theorem of Probability

18. One bag contains 4 white and 2 black balls. Another contains 3 white and 5 black balls. One ball is drawn from each bag. Find the probability that both are of same colour?

19.Evaluate k, if the following is a probability density function: Also obtain P(1<X<3)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 |
| P(X) | 1/6 | 1/2 | K/10 | 1/30 |

20. X has the p.d.f, f(x)=6x(1-x) for 0<x<1.find the first two Moments about mean.

21. The probability that a doctor will diagnose a particular disease correctly is 0.6. The probability that a patient will die by his treatment after correct diagnosis is 0.4 and the probability of death by wrong diagnosis is 0.7.What is the probability that his disease was not correctly diagnosed.

**(6 X 5 = 30marks)**

**Section C**

*Answer any 2questions. It carries 15marks.*

22. Find Mean, Median and Mode from the following data

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| No.of students | 3 | 13 | 28 | 48 | 60 | 60 | 70 |

23. In an analysis of correlation, the following results are legible. Variance of x=9, regression equations are 8x-10y+66=0, and 40x-18y=214, find 1) the mean value of x and y.2) the coefficient of correlation 3) the Standard deviation of y.

24. A random variable x follows a probability distribution as given below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 |
| F(x) | K/2 | k/3 | K+1/3 | 2k-1/6 |

 Find the value of k. Also find Mean and Variance

25. Find the Missing frequencies when N=100, mean=50.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| c.i | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
| freq | 14 | ---------- | 27 | --------- | 15 |

 **(2 X 15 = 30 marks)**

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