R-19

Code:1311/BL

Faculty of Science

B.Sc (Statistics) I-Year, CBCS-I Semester Backlog Examinations -January, 2021

PAPER: DESCRIPTIVE STATISTICS AND PROBABILITY

Time: 2 Hours

Max Marks: 80

I. Answer any **FOUR** of the following questions (4x20=80 Marks)

1. What are the measures of central tendency? Give an example for each.
2. Explain Sheppard's correction.
3. State and prove that addition theorem of probability for 'n' events.
4. State and prove Baye's theorem.
5. What is meant by a random variable. How many types of random variables?Define.
6. Derive Joint p.m.f and Joint P.d.f.
7. Show that i) $E(X+Y) = E(X)+E(Y)$ ii) $E(XY) = E(X)\,E(Y)$.
8. Define Moment generating function of a random variable X. Write down the properties of M.g.f

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R-16

Code:1311/BL

Faculty of Science

B.Sc. (Statistics) I-Year, CBCS-I Semester Backlog Examinations –January, 2021

PAPER: DESCRIPTIVE STATISTICS AND PROBABILITY (OLD)

Time: 2 Hours Max Marks: 80

I. Answer any **Four** of the following questions (4x20=80 Marks)

1. Describe the different measures of central tendency of a frequency distribution, mentioning their merits and demerits?
2. For a distribution the mean is 10, variance is 16, γ_2 is +1 and β_2 is 4. Obtain the first four moments about the origin, i.e., zero. Comment upon the nature of distribution?
3. State and prove Boole's inequality?
4. State the Baye's theorem? The chances of X, Y, Z becoming managers of certain company are 4:2:3. The probabilities that bonus scheme will be introduced if X, Y, Z become managers, are 0.3,0.5 and 0.8 respectively. If the bonus scheme has been introduced, what is the probability of X is appointed as a manager?
5. Explain the concepts (i) conditional probability (ii) random variable (iii) independence of random variables, and (iv) marginal and conditional probability distributions?
6. Explain Transformation of One-dimensional random variable?

   Let f(x)= ½, -1<x<1

   0, elsewhere

   Be the p.d. f of the random variable x. Find distribution function and the p.d.f of $Y=X^2$
7. Define M.G.F of a random variable X, state and prove its properties?
8. State and prove Chebyshev's inequality?

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