

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [BATCH 2016-19]

B.A./B.Sc. SECOND SEMESTER (January – June) 2017

Mid-Semester Examination, March 2017

Date : 17/03/2017

Time : 12 noon – 1 pm

STATISTICS (General)

Paper : II

Full Marks : 25

[Use a separate Answer Book for each group]

Group – A

(Answer any three questions)

[3×5]

1. Let X have a geometric distribution. Show that $P[X > s + t | X > s] = P[X > t]$ where s and t are non-negative integers.
2. An oil company conducts a geological study that indicates that an exploratory oil well should have a 20% chance of striking oil. What is the probability that the third strike comes on the seventh well drilled? What is the mean and variance of the number of wells that must be drilled if the oil company wants to set up three oil producing wells?
3. Find the mode of binomial distribution.
4. The probability that a Poisson variable X takes a positive value is $(1 - e^{-2})$. Find $P(-1 < X < 1.6)$

Group – B

(Answer any two questions)

[2×5]

4. Define correlation ratio. Show that its value is always greater than or equal to correlation coefficient.
5. What do you mean by partial correlation ? Is it possible that two variables are showing high correlation when practically they are independent? Justify your answer.
6. Given : $r_{12}=0.41$, $r_{13}=0.71$, $r_{23}=0.5$. Find $r_{12.3}$, $r_{13.2}$ and $R_{1.23}$.

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