

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2016-19]

B.A./B.Sc. THIRD SEMESTER (July – December) 2017

Mid-Semester Examination, September 2017

Date : 15/09/2017

STATISTICS (General)

Time : 12 noon – 1 pm

Paper : III

Full Marks : 25

[Use a separate Answer Book for each group]

Group – A

(Answer the following questions)

[2×5]

1. Describe how would you fit a linear trend equation and explain how would you convert an yearly trend equation to a monthly trend equation?

OR,

Distinguish between seasonal and cyclical variation? State methods to obtain seasonal variation.

2. State Fisher's price index formula and explain why this formula is better than Laspeyres' formula?

OR,

State different uses of index number.

Group – B

(Answer any three questions)

[3×5]

3. Let $T = \frac{W}{\sqrt{\frac{V}{r}}}$, where the independent random variables W and V are, respectively, 'normal into

mean zero and various 1' and ' χ^2 with r degree of freedom'. Find out the distribution of T^2 with suitable explanation.

4. a) Explain what do you mean by MVUE? [2]

b) An observation is drawn randomly from $N(0, \sigma^2)$. Find the unbiased estimator of σ^2 . [3]

5. An random sample of size 'n' is drawn from $N(\mu, \sigma^2)$. Find the MLE (Maximum Likelihood estimator) of μ .

6. Let t_n be a consistent estimator of θ . Define $t_n' = \frac{n-1}{n-2} t_n$. Show that t_n' is also a consistent estimator of θ .

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