

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR (BATCH 2014-17)

B.A./B.Sc. FOURTH SEMESTER (January – June) 2016

Mid-Semester Examination, March 2016

Date : 21/03/2016

STATISTICS (General)

Time : 12 noon – 1 pm

Paper : IV

Full Marks : 25

[Use a separate Answer Book for each group]

## Group – A

Answer **any one** question of the following :

(1 × 10)

1. Write the assumptions used in the analysis of one-way classified data, stating clearly the mathematical model & the null hypothesis in it.
2. Let  $\{y_{ij} ; i=1,2,3; j=1,2,3,4,5 \text{ for each } i\}$  denote the marks of j-th student in a certain test corresponding to i-th school. Carry out the analysis of variance on the basis of the following calculations and comment (Given that  $F_{0.05} = 3.88$  with appropriate df)

i :	1	2	3
$\sum_j y_{ij} :$	35	25	30
$\sum_j y_{ij}^2 :$	255	131	182

## Group – B

Answer **any three** questions of the following :

(3 × 5)

3. Describe the advantages of sample survey over complete enumeration.
4. Show that sample mean is an unbiased estimator of population mean in case of SRSWR. Hence find its standard error.
5. What are random sampling numbers? Explain with an example how they can be used to draw a simple random sample without replacement.
6. How will you determine the sample size of each stratum in stratified random sampling? Hence show the formula of Neyman's optimum allocation formula.

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