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 STATISTICS (General)

Date : 21/03/2016 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 :

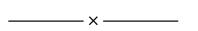
- 1. Write the assumptions used in the analysis of one-way classified data, stating clearly the mathematical model & the null hypothesis in it.
- 2. Let $\{y_{ij}; i=1,2,3; j=1,2,3,4,5 \text{ for each } i\}$ denote the marks of j-th student in a certain test corresponding to i-th school. Carry out the 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 $\sum_{i} y_{ij}^{2}$: 255 131 182

<u>Group – B</u>

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

- 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.



 (1×10)

 (3×5)