RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FOURTH SEMESTER EXAMINATION, MAY 2019

SECOND YEAR (BATCH 2017-20)

Date : 25/05/2019 **STATISTICS (General)**

Time : 11.00 am – 1.00 pm **Paper : IV** Full Marks : 25

[Use a separate Answer Book for each group]

Group - A

1. Answer **any three** questions : [3×5]

   a) Derive the standard error of sample proportion for simple random sampling without replacement. (5)

   b) Write the advantages of sampling over complete enumeration. (5)

   c) Illustrate optimum allocation and proportional allocation with respect to stratified random sampling. (5)

   d) From a given population of size 4, a sample of size 2 is drawn using systematic sampling. Obtain an unbiased estimator for population mean. (5)

Group - B

2. Answer **any one** question : [1×10]

   a) Describe the technique of ANOVA in 2-way classified data, stating clearly the assumptions you make. Provide the ANOVA table as well. (Assume 'm' observations per cell). (10)

   b) A student analyzed data for a one-way analysis of variance situation for which there were 3 levels of the factor, and 21 people measured at each level. Unfortunately after running the analysis, the student lost the computer output. He said "All I remember is that one of the mean squares was 100 and the other one was 500, but I can't remember which was which. Oh, and I remember that the p-value of the test was 0·01." Based on the information, construct the ANOVA table.

   [Some p-values corresponding to observed F Values (with d.fs 2 & 60 respectively) are given below to help you think : (10)

F-value	p-value
0.9	0.41
1	0.37
2	0.14

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