MCC-003-1172004   Seat No. _____

M. Sc. (Sem. II) (CBCS) Examination

April/May – 2018

Sampling Techniques : MS-204

(Theory)

Faculty Code : 003
Subject Code : 1172004

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions :
    (1) Attempt all questions.
    (2) Each question carries equal marks.

1   Answer any seven of the following :   **14**
    (1) Define Sample and Sample size.
    (2) Define Population.
    (3) Define Parameter and Statistics.
    (4) What is meant by sampling frame ?
    (5) Define sampling unit.
    (6) In what situation sampling inevitable ?
    (7) Explain the meaning of the Simple Random Sampling with replacement and without replacement.
    (8) Write merits of Simple Random Sampling.
    (9) Write limitations of Stratified Random Sampling.
    (10) Write comparisons Systematic Sampling with Stratified Sampling.

2   Answer the following questions : (any two)   **14**
    (1) Prove that

$$E\left(\overline{Y}_{nM}\right)=\overline{Y}_{NM}$$

$$E\left(\overline{Y}nM\right)=\left(\frac{1}{n}-\frac{1}{N}\right)S_b^2$$

    (2) Define

Bias $\left(Y_{lr}\right)=-\text{cov}\left(\overline{x},b\right)$

    (3) Explain Mean square error of ratio estimator and Estimation of Variance of ratio estimator.

3   Answer the following questions :   **14**

      (1)   The probability of selecting the ith unit in the first effective draw is $\dfrac{xi}{x}$ in Lahiri's method of PPS sampling.

      (2)   Explain any two method for seletion of a PPS sample without replacement.

OR

3   Answer the following questions :   **14**

      (1)   Explain Lahiri's method with example.

      (2)   Explain Murthy's unordered estimator method.

4   Answer the following questions : (any two)   **14**

      (1)   Explain unbiased ratio type estimator.

      (2)   Proof β is Regression Coefficient of Y over X.

      (3)   Comparison of regression estimator with SRSWOR and Ratio estimator.

5   Answer the following questions : (any two)   **14**

      (1)   Why double sampling is used or Necessary ? Also write non-sampling error.

      (2)   Explain Double sampling for unbiased ratio estimator.

      (3)   Explain double sampling for PPS sampling.

      (4)   Explain Bias of Ratio estimator method.

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