

**October 2025**  
**B.A./B.Sc.**  
**Third Semester**  
**MULTI-DISCIPLINARY COURSE – 3**  
**STATISTICS**  
*Course Code: STO 3.11*  
(Applied Statistics)

Total Mark: 35

Pass Mark: 14

Time: 2 hours

I. Answer two questions, taking one from each unit.

**UNIT-I**

1. (a) What is sampling? In what way is sampling more useful than complete enumeration? 2+3=5  
(b) Prove that in SRSWOR, the variance of the sample mean is given by  $Var(\bar{y}_n) = \frac{S^2}{n} \frac{N-n}{N}$ . 5
2. (a) Briefly discuss the basic principles of sample survey. 5  
(b) Explain non-probability and probability sampling, mentioning some of its merits and demerits. 5

**UNIT-II**

3. (a) What is meant by a time series? Indicate its importance in business and economics. 1+4=5  
(b) Define crude death rate and give its advantages and disadvantages. 1+4=5
4. (a) What is intelligence quotient (IQ)? Describe the procedure and test for measuring intelligence quotient. 1+4=5  
(b) Describe any two methods for determining trend in a time series. 5

II. Answer any three of the following questions.

5. Briefly explain stratified sampling and systematic sampling. 5

6. What are sampling errors and non-sampling errors? What are the ways to limit sampling error and non-sampling error?  $2+3=5$
7. Define the following:  $1 \times 5 = 5$
- (a) Infant mortality rate
  - (b) Total fertility rate
  - (c) General fertility rate
  - (d) Z-score
  - (e) Rate and ratio of vital events
8. Discuss the concept of T-scores and percentile scores.  $5$
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