

2024

STATISTICS — GENERAL

Paper : GE/CC-4

(Applications of Statistics)

Full Marks : 50

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

1. Answer *any five* questions : 2×5
    - (a) Provide an example of an upward trend and an example of a declining trend.
    - (b) Mention any two factors responsible for seasonal variations in time series data.
    - (c) Define cyclical fluctuations.
    - (d) Mention two merits of age specific fertility rate (ASFR).
    - (e) Define crude death rate (CDR).
    - (f) What is cost of living index number?
    - (g) What is meant by stratified random sampling?
    - (h) What do you mean by standard error of a statistic?
  
  2. Answer *any two* of the following : 5×2
    - (a) Prove or disprove that the standard error of the sample mean is larger for simple random sampling with replacement compared to simple random sampling without replacement.
    - (b) Discuss the importance and use of weights in the construction of index numbers.
    - (c) Explain the concept of standardized death rate, including its merits and demerits.
  
  3. Answer *any three* of the following :
    - (a) Briefly describe various methods for measuring secular trends in time series data. 10
    - (b) What is a life table? Explain the different parts of a life table with their significance. Discuss various uses of a life table. 2+5+3
    - (c) Define gross reproduction rate (GRR) and net reproduction rate (NRR), and explain their roles in forecasting future population rates. 10
    - (d) Briefly describe different tests for checking the consistency of index number formulae. 10
    - (e) Distinguish between the following pairs : 5×2
      - (i) sampling errors and non-sampling errors
      - (ii) probability sampling and non-probability sampling.
-