

Time Allowed- 3 Hours

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be given either in English or in Bengali but all answers must be in one and same language.

Group-A

Answer any ten questions:

10 X 10 = 100

1.

(a) Distinguish between Process control and product control with examples.

(b) What is control chart for fraction defectives? Why is it better than the np chart when the sample size varies?

(c) Explain the concept of Reliability. How can we find the reliability of a parallel system using component reliabilities?

(d) Show that Edgeworth-Marshall index number necessarily lies between Laspeyre's and Paasche's index numbers.

(e) What is cost of living index number and how is it constructed?

(f) Discuss "Infant Mortality Rate" mentioning its advantages and drawbacks.

(g) Distinguish between stable population and stationary population. In this context, interpret the L_x function of a life table.

(h) Explain the difference between age-specific death rate and instantaneous death rate.

(i) Describe how the method of moving averages can be used to determine the nature of trend of time series data.

(j) Distinguish between Additive and Multiplicative models in time series.

(k) Discuss clearly the errors in constructing index numbers.

P.T.O

- (l) What are the differences between Complete and Abridged life tables?
- (m) What are Average Outgoing Quality Limit and Average Total Inspection? How are the two used in selecting a sampling plan?
- (n) Write a note on Autoregressive process of order 2.
- (o) Write the full forms of the statistical offices RGI & DGCIS and mention their important publications.

Group-B

Answer any five questions:

20 X 5 = 100

2. What is income inequality? Explain the concept of Gini's coefficient of concentration as a measure of inequality of income. Derive Gini's coefficient of concentration for any continuous distribution of your choice.
3. (i) What do you mean by producer's risk and consumer's risk with respect to a sampling inspection plan?
- (ii) Explain clearly the concept of a sequential sampling plan.
4. What do you mean by growth of a population? What is the essential difference between the Total Fertility Rate and the Gross Reproduction Rate? Why cannot the former be used to measure population growth?
5. Discuss various problems that arise in the construction of a price index number for any country.
6. Discuss, in detail, the use of periodogram analysis to study the nature of cyclical fluctuation in a given time series.
7. Explain the concept of simplex algorithm for solving a linear programming problem with the help of an example.
8. What are the main activities of National Sample Survey Office (NSSO) and West Bengal Bureau of Applied Economics and Statistics?
9. Write notes on :
- (i) Neonatal and Perinatal Mortality rates
- (ii) Allowable variation and preventable variation in a manufacturing process