## WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 5th Semester Examination, 2021-22

## STSACOR12T-Statistics (CC12)

### Economic Statistics and Official Statistics

Time Allotted: 2 Hours                                                                                     Full Marks: 40

*The figures in the margin indicate full marks.*
*Candidates should answer in their own words and adhere to the word limit as practicable.*
*All symbols are of usual significance.*

**Answer any *four* questions from question numbers 1-6 and any *two* questions from question numbers 7-10**

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|---|---|---|
| 1. | Why is the simple arithmetic mean of price-relatives considered to be an inappropriately weighted aggregative price index? Suggest some better choices of weights. | 5 |
| 2. | Show that if , $L\,(=\text{Laspeyres' index})\,<P\,(=\text{Paasche's index})$, then $L<EM<P$, where $EM$ = Edgeworth-Marshall's index number. | 5 |
| 3. | Why homogeneity error arises and how is it measured? State the situations when this error will be maximum and minimum. | 5 |
| 4. | Show that if the distribution of income follows a Pareto distribution with Pareto coefficient greater than unity then Gini coefficient is given by $\dfrac{1}{2v-1}$ where $v$ is the Pareto coefficient. | 5 |
| 5. | Explain with the help of a diagram the circular flow of output, income and expenditure in an economy. | 5 |
| 6. | Define personal income and personal disposable income. | 5 |
| 7. | Describe the different methods of estimation of national income. Point out the difficulties faced in each case. | 10 |
| 8. | Explain the different tests that an index number should satisfy. Judge the performances of Laspeyres', Paasche's and Fisher's indices in the light of these tests. | 10 |

9. (a) Bring out the superiorities of the chain base system over the fixed base system in the construction of a series of consumer price index numbers. Why is the chain base system seldom used?

   (b) Show that, under normal economic conditions, the index number calculated from a given set of data by using Laspeyres' formula would be greater in magnitude than that using Paasche's formula. Deduce the conditions under which the two will be equal.

6+4

10.(a) Define Gini coefficient ($G$) in connection with an income distribution. Interpret the case $G = 0$. Find the least upper bound of $G$ when number of persons is large.

   (b) Show that Gini coefficient can be expressed as a weighted average of income where the weights are the rank difference from the median rank.

10

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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