

Seat No. : _____

AC-106
April-2019
B.Sc., Sem.-IV
CC-205 : Statistics
(Applied Statistics)
(New Course)

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) Write the following : **14**

- (I) Define index numbers. Write the problems based on construction of index numbers.
- (II) Define price index number and quantity index number with example. Also give merits and demerits of index number.

OR

- (I) Define fixed based and chain based index number. State the difference between fix based and chain based index number.
- (II) What is wholesale price index number. Give its merits and demerits.

(B) Answer the following questions in **one** or **two** lines : (Any 4) **4**

- (1) What is a base year ?
- (2) Define value index.
- (3) Index numbers are described as barometers of economic activity. True or False.
- (4) Give the general formula of index number.
- (5) Write any one merit of chain base index number.
- (6) Explain Time Reversal Test.

2. (A) Write the following : **14**

- (I) State Laspeyer's, Paasche's and Fisher's Index numbers. Verify them for both reversal tests of Index numbers.
- (II) Discuss construction of cost of living index number. State its uses.

OR

- (I) Discuss weighted and unweighted index numbers in detail.
- (II) Describe what is meant by base shifting and splicing of index numbers.

- (B) Answer the following questions in **one** or **two** lines : (Any 4) 4
- (1) What is a unit test ?
 - (2) What is circular test ?
 - (3) What is link relative ?
 - (4) State the formula for weighted index number.
 - (5) State Marshal-Edgeworth index number.
 - (6) State relation between Fisher's Laspeyer's and Paasche's index numbers.
3. (A) Write the following : 14
- (I) What is meant by time series ? Give its uses.
 - (II) Explain the components of time series in detail.
- OR**
- (I) Explain the additive and multiplicative model of time series.
 - (II) What do you understand by seasonal variations in time series ?
- (B) Answer the following questions in **one** or **two** lines : (Any 3) 3
- (1) Define time series.
 - (2) What is a trend ?
 - (3) Define cyclic variations.
 - (4) Give any one merit of principle of least squares.
 - (5) Give difference between Seasonal and Cyclical Variation.
4. (A) Write the following : 14
- (I) What is vital statistics ? State their merits and demerits.
 - (II) Describe various types of birth rates.
- OR**
- (I) Explain Gross and Net reproduction rates. Interpret the value of net reproduction rate.
 - (II) Write a note on life table.
- (B) Answer the following questions in **one** or **two** lines : (Any 3) 3
- (1) Define general fertility rate.
 - (2) Define age specific death rate.
 - (3) State the interpretation of $GRR=0.7$.
 - (4) What is I_x in standard life table ?
 - (5) Define e_x° .
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AC-106

April-2019

B.Sc., Sem.-IV

CC-205 : Statistics

(Statistical Test Official Statistics & Sampling)

(Old Course)

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) Write the following : 14

- (i) Define the following terms :
- (a) Simple and composite hypothesis.
- (b) Type I and Type II error
- (c) Level of significance
- (ii) Explain the procedure to test the significance of difference between two means based on large sample test.

OR

- (i) Explain the procedure to test the significance of difference between two proportions based on large sample test.
- (ii) Explain Fisher's Z transformation in detail.

(B) Answer the following questions in **one** or **two** lines : (Any 4) 4

- (i) What is a parameter ?
- (ii) What is a standard error ?
- (iii) Give an example of null hypothesis.
- (iv) Give an example of alternate hypothesis.
- (v) What is a statistic ?
- (vi) Define level of significance.

2. (A) Write the following : 14

- (i) Derive the equation of plane of regression for three variables using Yules notation.

(ii) Drive $\sigma_{1.23}^2 = \sigma_1^2 \frac{\Delta}{\Delta_{11}}$.

OR

(i) Derive $R_{1.23}^2 = \frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{23}r_{31}}{1 - r_{23}^2}$

(ii) Derive $R_{12.3} = \frac{-\Delta_{12}}{\sqrt{\Delta_{11}\Delta_{22}}}$.

- (B) Answer the following questions in **one** or **two** lines : (Any 4) 4
- (i) What is a correlation ?
 - (ii) What is multiple regression ?
 - (iii) What is primary subscript ?
 - (iv) What is the range of correlation coefficient ?
 - (v) Give any one property of multiple correlation coefficient.
 - (vi) State range of multiple correlation coefficient.
3. (A) Write the following : 14
- (i) State the origin and functions of Indian Census Operation in detail.
 - (ii) Give the details of statistical organizations in Central Government of India.
- OR**
- (i) Write the origin and functions of NSSO in detail.
 - (ii) Write the origin and functions of CSO in detail.
- (B) Answer the following questions in **one** or **two** lines : (Any 3) 3
- (i) What is the full form of CSO ?
 - (ii) What is the full form of ICMR ?
 - (iii) What is the role of Indian Statistical Institute ?
 - (iv) Who is the founder of Indian Statistical Institute ?
 - (v) State full form of NSSO.
4. (A) Write the following : 14
- (i) Write the principal steps of Sample survey in detail.
 - (ii) Define the following terms :
 - (a) Sample and sample size
 - (b) Population and parameter
 - (c) Standard error
- OR**
- (i) What are non-sampling errors ? What are the factors arising from non-sampling error ?
 - (ii) What are the advantages and disadvantages of sampling ?
- (B) Answer the following questions in **one** or **two** lines : (Any 3) 3
- (i) What are non-respondents ?
 - (ii) Explain two methods for collecting data.
 - (iii) What is a sample ?
 - (iv) Define mixed sampling ?
 - (v) What is judgmental sampling ?