The Assam Royal Global University, Guwahati
Royal School of Humanities and Social Sciences
Semester End Examination, January 2022
BA(H) Economics Third Semester
Course Title: Statistical Method
Course Code: ECO182C302

Time: 3 Hours   **Maximum Marks: 70**

The figures in the right-hand margin indicate marks.

Section – A

1.   Attempt **all questions**.   **2x8**

   a.   Write two merits of arithmetic mean.

   b.   What is frequency distribution?

   c.   What is non-linear correlation? Explain with the help of a diagram.

   d.   Write the importance of regression analysis in Economics. Give examples.

   e.   What is an index number?

   f.   Write the uses of cost of living index numbers.

   g.   What is meant by mutually exclusive events?

   h.   Two unbiased coins are tossed. What is the mathematical expectation of number of heads appears?

Section – B

2.   Attempt **any two** of the following: **6x2**

   a.   Write the characteristics of a good average. Mean weight of 10 students is 50 and mean weight of 20 students is 60. Calculate the group mean.

   b.   Calculate the arithmetic mean from the following distribution:

Class interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	1	2	3	4	5	6	7	8

   c.   What is deviation? Calculate the standard deviation about median and coefficient of standard deviation of the following data:

Marks	0-10	10-20	20-30	30-40	40-50
Frequency	4	8	12	14	12

P.T.O.

3.   Attempt **any two** of the following:

a. Calculate the correlation coefficient using the following data:

X	2	3	4	5	6	7	8
Y	10	15	20	25	30	35	40

Interpret the correlation coefficient.

b. What is the importance of rank correlation coefficient? Ten students in a beauty contest are ranked by three judges in the following orders:

Judge 1	1	6	5	10	3	2	4	9	7	8
Judge 1	2	10	3	5	6	9	8	1	7	
Judge 2	3	5	7	6	5	10	4	2	9	
Judge 3	4	7	8	9	3	2	6	5	1	

Use the rank correlation coefficient to determine which pair of judges has the nearest approach to common test in beauty.

c. From the data given below find:

   I.   The two regression coefficient

   II.   The two regression equation

   III. The coefficient of correlation.

Marks in Economics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	10	60	50	80	100	90	70	30	33	39

Estimate the regression equation of agricultural production on rainfall. Also calculate agricultural production when rainfall is 250.

4.   Attempt **any two** of the following:

a. What are the problems of construction of Index numbers? Explain.

b. What is the difference between weighted aggregate method and simple aggregate method of constructing index numbers? From the following data calculate index number by Simple Aggregate method:

Commodity	A	B	C	D
Price in 1980	162	256	257	232
Price in 1981	171	164	189	145

c. Calculate the price index numbers for 1990 by using Paasche's Method, Laspeyre's method and Fisher's method from the following data:

Goods	Price(2000)	Quantity(2000)	Price(2005)	Quantity(2005)
A	4	10	5	20
B	5	15	6	30
C	2	20	8	35
D	3	25	9	40

5. Attempt **any two** of the following: 7x2

(a) Two dice are thrown. Find the probability of
   (i) Getting same points in both the dice.
   (ii) Sum of the points is a multiple of 3 or 4.
   (iii) Either of the points is divisible by 5.

(b) Write the properties of binomial probability distribution. Five coins are tossed simultaneously. Find the probability of getting at least 2 heads.

(c) Under what conditions a binomial distribution tend to Poisson distribution? Mention four examples where Poisson distribution is applied. Find the probability of X less than 2 if X follows Poisson Distribution with parameter 5. [Given: $e^{-5} = 0.007$]