DOON UNIVERSITY, DEHRADUN
Final Semester Examination, 2016
School of Social Sciences
Msc. Economics Integrated (First Semester)
Course Code: SSEI-114 Statistical Methods I

Time Allowed: 3 Hours

Maximum Marks: 50

All the best☺

Section A (Attempt all questions)

(2*5=10 marks)

1. Give an example of change of origin and change of scale in finding the correlation value.
2. If the value of r is +0.9 and its probable error is 0.0128, what would be the value of n?
3. Show the nature of the curve when ß1= 0.88 and ß2= 2.17.Also signify them.
4. What is the probability of obtaining a jack or spade?
5. In how many total ways can the word ASSESSMENT be arranged?

Section B (Attempt any four questions)

(4*5=20 marks)

1. What do you understand by mutually exclusive and exhaustive event? Explain with the help of an example.
2. What is the probability that a leap year selected at random will have 53 Sundays? (Show the working)
3. Quotations of index number of security prices of a certain joint stock company and of prices of preference shares and debentures are given below:

Preference Share Prices	48	33	40	9	16	16	65	24	16	57
Price of Debentures	13	13	24	6	15	4	20	9	6	19

Find the spearman's correlation between preference share prices and debenture prices.
4. If the first four moments of a distribution about the value 5 are equal to -4, 22, -117 and 560, determine the corresponding moments about actual mean. Also, mention whether the distribution is mesokurtic? Give reasons.
5. A computer operator while calculating the coefficient between two variables x and y for 25 pairs of observations obtained the following results:
n= 25, $\sum x= 125$, $\sum x^2 =650$, $\sum y= 100$, $\sum y2= 460$ $\sum xy= 508$. It was later discovered at the time of checking that he had copied down two of the pairs as (6,14) and (8,6) instead of (8,12) and (6,8). Obtain the correct values of the correlation coefficient.

Section C (Attempt <u>any two</u> Questions)   **(2*10= 20 marks)**

1. From the following distribution, calculate the first four central moments, the value of ß1 & ß2. Also comment on the distribution.

Class Interval	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
Cumulative Frequency	1	5	13	32	67	87	94	95	100

2. Family income and its percentage spent on food in case of hundred families gave the following bivariate frequency distribution . Calculate the value of 'r' and P.E and interpret the values.

Family Income / Food Expenditure (in %)	200-300	300-400	400-500	500-600	600-700
10-15	-	-	-	3	7
15-20	-	4	9	4	3
20-25	7	6	12	5	-
25-30	3	10	19	8	-

3. **A)** The probability that India wins a cricket test match against Sri Lanka is given to be 1/3. If India plays three one day matches, what is the probability that :
   a) India win all three matches
   b) India wins at least one match.

   B) A doctor is to visit a patient. From the past experience, it is known that the probabilities that he will come by train, bus, scooter or by any other means are 3/10, 1/5, 1/10 and 2/5 respectively. The probability that he will be late are1/ 4, 1/3 and 1/12 if he comes by train, bus and scooter. But if he comes by any other means, then he will not be late. When he arrived, he was late, what is the probability that he came by train?

   C) A box of nine golf gloves contains two left handed and 7 right handed. If two gloves are randomly selected from the box without replacement. What is the probability that one is left and the other is right handed?
   Also, what is the probability if two gloves are selected at random with replacement, both of them are right handed?   **(3+4+3=10 marks)**