25/5/2016

DOON UNIVERSITY, DEHRADUN

Final Semester Examination, 2016

School of Social Sciences

Msc.Economics Integrated (Second Semester)

Course Code: SSEI-153 Statistical Methods II

Time Allowed: 3 Hours *Maximum Marks: 50*

Note: Attempt All Questions from Sections A & Section B & any two questions from Section C

All the best☺

Section A (Attempt all questions) **(10 marks)**

1. Explain the 'independence' as an essential of sampling.
2. In a class of 112 students with roll no 1 to 112. It is desired to take sample of 8 students. Using systematic sampling method mention the numbers to be include.
3. If the coefficient of regression on Y on X is 0.979 & X on Y is 0.929, comment on its value of correlation.
4. 300 labourers were selected at random from a certain district. The mean income was 180 rupees per month with standard deviation of 36.6. Calculate the value of standard error of mean.
5. Explain the assumption of Homogeneity & independence of error in Analysis of variance.

Section B Attempt all questions. **(4*5=20 marks)**

1. The following data presents the yield in quintal of common subdivisions of equal area of two agricultural plots:

Plot 1	6.2	5.7	6.5	6.0	6.3	5.8	5.7	6.0	6.0	5.8
Plot 2	5.6	5.9	5.6	5.7	5.8	5.7	6.0	5.0	5.7	5.5

Test whether two samples taken from two random population have same variance (5% point of $F_{v1=9\ ,\ v2=9} = 3.18$, $F_{v1=10\ ,\ v2=10} = 4.25$)

2. The coefficient of correlation between ages of husbands & wives in a community was found to be +0.8, the average of the husband's age was 25years and that of wives was 22 years. Their standard deviation was 5 & 4 as for wives to husband respectively. With the help of regression equations :
   a) Expected age of wife when husband is 32 years old
   b) Expected age of husband when wife is 18years old.

3. Differentiate between **(i) Sampling & non Sampling errors** (ii) **Quota Sampling & Stratified Sampling** with the help of an examples.

4. Soulergy, an agency conducting weight reduction programme, claims that the programme is effective in weight reduction at least 5 kg. In evidence therefore participant's weight were

recorded for 10 participants. On the basis of this sample evidence, can the claim of the agency on weight reduction be sustained and recommended to others? Test the claim at 5% L.O.S

Latter(Kg)	77	84	92	87	80	74	80	85	95	96
Former(Kg)	86	92	100	93	88	80	88	92	95	106

$t_{0.05(v=9)} = 2.28$

Section C Attempt any two questions. **(10*2=20 marks)**

1. From the following find the two regression coefficients. Also calculate the value of r and verify the actual calculations.

X / Y	0-2	2-4	4-6	6-8
0-10	3	2	-	-
10-20	2	3	1	-
20-30	-	-	1	3
30-40	-	-	3	1

Considering X as production & Y as Sales,
Find, the expected sales when production is 28.4 Units and the estimated production when the sale is expected to be 5.7 Crores.

2. **A)** A sample analysis of examination of 500 students was made. It was found that 220 students had failed, 170 had secured a third class, 90 were placed in second class and 20 got a first class. Are these figures commensurate with the general examinations which are in the ratio of 4:3:2:1 for the various categories respectively. **(Table value of Chi- square for v=2 is 3.68, v=3 is 7.81 and v=4 is 8.65)**
B) Give an arbitrary example of Yate's Correction. Why is it useful?

3. The following table gives the number of refrigerators sold by 4 salesmen in three months.

Month	**Salesman**			
	A	**B**	**C**	**D**
OCT	50	40	48	39
NOV	46	48	50	45
DEC	39	44	40	39

A) Is there a significant difference in the sales made by the four salesmen?
B) Is there a significant difference in the sales made during three different months?

$F_{(0.05\ v1=2\ v2=8)} = 4.46$, $F_{(0.05\ v1=3\ v2=12)} = 5.65$

$F_{(0.05\ v1=3,v2=8)} = 4.07$, $F_{(0.05\ v1=4,v2=12)} = 5.32$