DOON UNIVERSITY, DEHRADUN

Semester Final Examination, odd Semester, 2016

School of social science

M.A. (Economics) 1nd Sem

Course: SSE 512-statistics 1st

Time Allowed: 3Hours   *Maximum Marks: 50*

1- You are given the following information relating to a frequency distribution comprising 10 observation :

$\bar{X} = 5\cdot5$, $\bar{Y} = 4\cdot0$, $\sum X^2 = 385$, $\sum Y^2 = 192$, $\sum(X^2 + Y^2) = 947$ Find $r_{xy} = ?$ 5 Marks

OR

If the value of r is $\cdot917$ and its probable error is $\cdot034$ then what would be the value of N.
                    5 marks

2- For 50 students of a class the regression equation of marks in statistics (X) on the marks in accountancy (Y) is 3Y -5X + 180=0. The mean marks in accountancy is 44 and variance of marks in statistics is 9/16 of the variance of marks in accountancy. Find the mean marks in statistics and the coefficient of correlation between marks in the two subjects.   6 Marks

OR

You are given the following Data   6 marks

	X	Y
Arithmetic Mean	36	85
Standard deviation	11	8
Correlation Between X & Y	$\cdot66$	

a) Find the two regression Equations
b) Estimate the value of x when Y is 75

3- Calculate Fisher's Ideal index from the given Data. Does it satisfy the time reversal and factor reversal test: 7 marks

Commodity	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

OR

Obtain Laspeyres price Index number and Paasche's quantity Index Number from the following Data   7 marks

Commodity	Price		Quantity	
	Base Year	Current Year	Base Year	Current Year
1	2	5	20	15
2	4	8	4	5
3	1	2	10	12
4	5	10	5	6

4- Using three year moving average, determine the trend and short term fluctuation. Plot the original and trend values on the same graph paper   6 marks

year	Production(000tonnes)	year	Production(000tonnes)
2000	21	2005	22
2001	22	2006	25
2002	23	2007	26
2003	25	2008	27
2004	24	2009	26

OR

Write short notes on   6 marks

a) Measurement on cyclic variation
b) Measurement of irregular variation

5- A committee of 4 people is to be Appointed from 3 officers of the production department, 4 officers of the purchase department, 2 officers of the sales department and 1 charted accomtant, find the probability of farming the committee in the following manner

a) There must be one of each category
b) It should be one from the purchase department
c) The charted accountant must be on the committee   **6 marks**

OR

Suppose that one of the three men, a politician, a bureaucrat and an educationist will be appointed as the vice chancellor of the university. The probabilities of appointment are respectively 0.3, 0.25 and 0.45. the probability that research activity will be promoted by these

people if they are appointed is 0.4,0.7 and 0.8 respetively. What is the probability that research will be promoted by the new vice chancellor?   **6 Marks**

6- The following table gives the number of days in a 50 day period during which automobiles accidents occurred in a certain part of a city . fit a poission distribution of the data. **5 marks**

No of accident	0	1	2	3	4
No of days	19	18	8	4	1

OR

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An aptitude test for selecting officers in a bank was conducted on 1000 candidates, the average score is 42 and the standard deviation of score is 24, assuming normal distribution of the score and find:

A) The number of candidate whose score exceed 58

B) The number of candidate whose scores lies between 30 and 66

7- A random sample of 100 mill worker at Kanpur showed their mean wage to be rs. 350 with a std deviation of rs. 28. Another random sample of 150 mill worker in Bombay showed the mean wage to be rs . 390 with a std deviation of rs.40. Do the mean wage of worker in Bombay and Kanpur differ significantly? Use .05 Significance level.   5 marks

OR

What is hypothesis? Explain Type 1 error and type 2 error. Give the reason for preference over each other in any case.   5 marks

8- a) 1000 students at college level were graded according to their IQ and the economic conditions of their home . Us the chi square test to find out whether there is any association between economic condition at home and IQ level

Economic condition	IQ		Total
	high	low	
rich	460	140	600
Poor	240	160	400
total	700	300	1000

Given for v=1 chi square @5%= 3.84   5 marks

b- the following data present the yields in quantile of common 10 subdivision of equal area of two agriculture plos:

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	5.5	5.7	5.8

Test whether two samples taken from two random population have the same variance (@ 5% f v1=9 &v2= 9 is 3.18)   5 marks

OR

The following tables gives the number of refrigerators sold by 4 salesmen in 3 months: 10 marks

Month	Sales Men A	B	C	D
May	50	40	48	39
June	56	48	50	45
July	39	44	40	39

a) Is there a significance in the sale made by four sales men?

b) Is there significant difference in sales made during different months?