	OYOL/	A COL	LEGE	E (AUT	ONOM	(OUS)	, CHEI	NNAI	- 6	00 034
UC200)		M.Sc	. DEG	REE EX	KAMINA	TION -	STATI	STICS		
THIRD SEMESTER – <b>NOVEMBER 2013</b>										
LIDERAT LAN VESTION		ST 39	902 - S	TATIS	rics fo	OR EC	CONOMI	STS		
Date : 15, Time : 9:0			Dept	. No.				Max.	: 10	0 Marks
				SEC	CTION- A	4				
Answer ALL t	he followi	ng:					(10 2	X 2 = 20	))	
1) State any tw	o measure	es of cen	tral tend	ency.						
2) Give the for	nula for k	Karl Pear	rson's co	•	coefficie	ent.				
3) Define mutu	•			1:-4.:14:-	9					
<ul><li>4) What are the</li><li>5) Define type</li></ul>		ers of Bil	nomial c	listributic	on?					
6) What is the		ic for tes	sting the	equality	of propo	rtion in	large sam	ple?		
7) Write the for	ur compor	nents of	time ser	ies.	1 1		U	1		
8) Give the for					·					
9) Define Optim 10) State any tw				-	-		nrohlem			
10) State any t		15 01 000	anning i	.D.F.S 01	a transpo		problem.			
				SEC	CTION- I	B				
Answer any FI								(5 X	8 = 4	10)
Answer any <b>FI</b> 11) Find the st							s of 230 p		8 = 4	10)
11) Find the st	andard de	viation f	for the fo	ollowing	data give	n wages		ersons.		,
				ollowing	data give	n wages	s of 230 pe 120-130 45			140-150 8
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<ul> <li>11) Find the st</li> <li>Wages in Rs.</li> <li>No. of persons</li> <li>12) Find the co the follow</li> <li>Output of cars</li> <li>Cost of cars (R</li> <li>13) A sub-Cor</li> </ul>	andard de 70-80 12 oefficient ing data: (in '000) s. '000) nmittee of	viation f 80-90 18 of correl 35 98 f 6 meml	for the for 90-100 35 lation be 42 90 bers is to	billowing $100-1$ 42 etween ou 56 6 88 8	data give       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     110       10     100 <td>n wages -120 50 cost of a 82 82 ca group</td> <td>120-130 45 an automo 88 82 o consistin</td> <td>ersons. 130-1 20 bbile fac 90 80 ag of 7 n</td> <td>40 tory 97 80 nen a</td> <td>140-150 8 from 100 81 nd 4</td>	n wages -120 50 cost of a 82 82 ca group	120-130 45 an automo 88 82 o consistin	ersons. 130-1 20 bbile fac 90 80 ag of 7 n	40 tory 97 80 nen a	140-150 8 from 100 81 nd 4
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for testing purpose. He finds that 'make A' has a mean life of 1300 hours with a standard deviation of 82 hours and 'make B' has mean life of 1248 hours with a S.D of 93 hours. Discuss the significance of these results to test which makes of electric tube should the person buy.

17) From the following data, calculate price index numbers for 2004 with 2000 as base by:(i) Laspeyre's method, (ii) Paasche's method and (iii) Fisher's ideal method

	20	00	2004		
Commodity	Price	Quantity	Price	Quantity	
A	20	8	40	6	
В	50	10	60	5	
С	40	15	50	15	
D	20	20	20	25	

18) A departmental head has four subordinates and four tasks to be performed. The subordinates differ in efficiency and the tasks differ in their intrinsic difficulty. His estimate of the time each man would take to perform each task, is given in the matrix below.

Tasks							
Men	Ι	II	III	IV			
Zico	18	26	17	11			
Jay	13	28	14	26			
Muthu	38	19	18	15			
Febin	19	26	24	10			

How should the tasks be allocated, one to a man, so as to minimize the total man-hours?

## **SECTION – C**

Answer any **TWO** of the following:

19) (i) Find the regression line of Y on X for the following data:

X	25	28	35	32	36	36	29	38	34	32
Y	43	46	49	41	36	32	31	30	33	39

(ii) Find the mean and median for the following data given below:

Marks in Statistics	10-20	20-30	30-40	40-50	50-60
No. of students	3	7	10	3	2
					(1

- 20) (i) There are 3 boxes containing respectively 1 white, 2 red, 3 black balls; 2 white, 3 red, 1 black balls; 3 white, 1 red and 2 black balls. A box is chosen at random and from it two balls are drawn at random. The two balls are 1 red and 1 white. What is the probability that they come from the second box?
  - (ii)Students of a class were given an aptitude test. Their marks were found to be normally distributed with mean 60 and standard deviation 5. What percent of student scored (i) more than 60 marks, (ii) less than 56 marks and (iii) between 45 and 65 marks? (8+12)

21) (i) A company arranged an intensive training course for its team of salesmen. A random

## (2 X 20 = 40)

sample of 10 salesmen was selected and the value (in '000) of their sales made in the										
weeks immediately before and after the course are shown in the following table.										
Salesman	1	2	3	4	5	6	7	8	9	10
Sales before	12	23	5	18	10	21	19	15	8	14
Sales after	18	22	15	21	13	22	17	19	12	16
<b>T</b> ( 1	.1 .1	•	• 1	c ·	•		1			

Test whether there is evidence of an increase in mean sales.

(ii) In a sample of 600 parts manufactures by a factory, the number of defective parts was found to be 45. The company however claimed that only 5% of their product is defective. Is the claim tenable? (12+8)

<sup>22) (</sup>i) Using the three year and five year moving averages determine the trend for the following data:

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

(ii) Determine an initial basic feasible solution to the following transportation problem using the Vogel's approximation method.

	Distribution centres								
Factory	Mumbai	Bangalore	Delhi	Chennai	Available				
Kolkatta	6	5	8	8	30				
Cochin	5	11	9	7	40				
Ranchi	8	9	7	13	50				
Requirement	35	28	32	25					

(10+10)

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