STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86
(For candidates admitted from the academic year 2004 – 2005 & thereafter)

SUBJECT CODE : EC/MO/CE64
B. A. DEGREE EXAMINATION, APRIL 2010
BRANCH IV - ECONOMICS
SIXTH SEMESTER
COURSE : MAJOR – OPTIONAL
PAPER : COMPUTER APPLICATIONS IN ECONOMICS
TIME : 3 HOURS. MAX. MARKS : 100

Solve any 10 Problems (10 * 10 Marks each = 100 Marks)

1. Samples of light bulbs were bought from two suppliers and were subjected to destruction test in the lab. The following data was collected on the life of bulbs in hours as given below:

Life in Hrs	700-800	800-900	900-1000	1000-1100	Total
Supplier A	14	74	29	13	130
Supplier B	12	58	32	18	120

(a) Which supplier provides greater average life? Supplier A or B
(b) Which supplier provides uniform quality?
(c) Which supplier would you prefer

2. Given the demand and supply functions of watermelons along with its price range, create a table containing quantity demanded and supplied for watermelons at various price levels. Graph the same and depict the equilibrium price. Various prices at which watermelon bought and sold are:
(Price in Rs.) 4 5 6 8 10 12 14 16 18 20 and
the demand and supply equations are given as:
$Q_d = 20 – P$
$Q_s = – 10 + 2P$

3. Estimate the average price elasticity of demand. Forecast the level of demand if price increases to $12

Qty of Commodity A Demanded	**Qty of Commodity A Supplied**	**Price of Commodity A**
200	50	$7
180	90	$8
150	150	$9
110	210	$10
60	250	$11

4. A set of twelve students were given intensive coaching and five tests were conducted in a month. The scores of test 1 and test 5 are given in below and also in the file Testscores.xls. Use appropriate test to find out whether the scores from test 1 to test 5 show any significant improvement? Use 1%, 5% and 10% level of significance.

Student Id	101	102	103	104	105	106	107	108	109	110	111	112
Test 1	50	42	51	26	35	42	60	41	70	55	62	38
Test 5	62	40	61	35	30	52	68	51	84	63	72	50

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5. Estimate the consumption and savings function using the cross-section data given below. What are the MPC and MPS values? Test the statistical significance of the coefficients at 5% level of significance. Forecast the level of consumption at mean income. Forecast the level of savings for an individual; whose income is 20000.

Person	:	1	2	3	4	5	6	7	8	9	10	11
Consumption:		15600	6400	9200	14900	7200	7600	7200	8800	15400	4100	11500
Income	:	16300	6800	8600	15300	8700	7800	7300	10800	18600	5100	11800

6. **(a)** Fit a Regression equation for the above data to find the influence of Income on savings volume. (Write the Fitted Regression in the same Excel Sheet).

YEAR	SAVINGS	INCOME
1970	61.0	727.1
1971	68.6	790.2
1972	63.6	855.3
1973	89.6	965.0
1974	97.6	1054.2
1975	104.4	1159.2
1976	96.4	1273.0
1977	92.5	1401.4
1978	112.6	1580.1
1979	130.1	1769.5
1980	161.8	1973.3
1981	199.1	2200.2
1982	205.5	2347.3
1983	167.0	2522.4
1984	235.7	2810.0
1985	206.2	3002.0

(b) Interpret the fit of the model, and the significance of intercept income in the model. Compute the predicted savings and Fit the line that shows predict against actual.

(c) Predict the increase or decrease in savings if the income were Rs. 900 Rs.35,257, 61,005 & 1,00,000 respectively

7. An Income tax system taxes all incomes of £8,000 or less at a rate of 10%. For incomes in excess of £8,000, but not exceeding £20,000 the tax rate is 25% on that range of income. The top rate of tax is 40% and applies to income in excess of £20,000. Prepare a worksheet that can calculate the tax due for each level of taxable income given below. Also use Excel Charts to show the relationship between Taxable Income and Tax Due.

Income (in dollars) 0 2000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000 24000 26000

8. A consumer marketing group desired to examine whether super market chains operating in a city differed in their "out-of-stock" levels for their advertised products. The group identified the relavent response variable as the percentage of the items advertised not in stock. The following table provides the data from three supermarket chains in the city. Perform ANOVA and examine whether there are significant differences among the three chains with regard to mean percentage out of stock on advertised items

Chain 1	**Chain 2**	**Chain 3**
15	10	17
14	14	12
20	9	14
15	10	15
16	11	12

9. A bank issues credit cards to customers under the scheme of master card. Based on the past data, the bank has found out that 60% of all accounts pay on time following the bill. If a sample of 7 accounts is selected at random from the current database, construct the Binomial Distribution of accounts paying on time.

10. In a Market survey conducted to examine whether the choice of a brand is related to income strata of the consumers, a random sample of 600 consumers reveal the following observed frequencies. Determine by appropriate statistical tool whether the brand preference is associated with the income level.

Observed Frequency				
Income Strata (Income per month)	Brand 1	Brand 2	Brand 3	Total
<10000	132	128	50	310
10000-15000	62	60	28	150
15001-20000	30	30	26	86
> 20000	16	22	16	54
Total	240	240	120	600

11. During 1973 Qtr II there was a change in policy introduced. So clearly the duration from 1971 to 1975 can be classified into two mutually exclusive periods (Before 1973-II and after). Using dummy variable regression model test whether there is a statistical difference in the slope coefficients of the two periods.

Yr - Qtr	**Y**	**X1**	**X2**	**X3**
1971 - III	11.484	2.26	3.49	158.11
1971 - IV	9.348	2.54	2.85	173.36
1972 - I	8.429	3.07	4.06	165.26
1972 - II	10.079	2.91	3.64	172.92
1972 - III	9.24	2.73	3.21	178.46
1972 - IV	8.862	2.77	3.66	198.62
1973 - I	6.216	3.59	3.76	186.28
1973 - II	8.253	3.23	3.49	188.98
1973 - III	8.038	2.6	3.13	180.49
1973 - IV	7.476	2.89	3.2	183.33
1974 - I	5.911	3.77	3.65	181.87
1974 - II	7.95	3.64	3.6	185
1974 - III	6.134	2.82	2.94	184
1974 - IV	5.868	2.96	3.12	188.2
1975 - I	3.16	4.24	3.58	175.67
1975 - II	5.872	3.96	3.54	188.67

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