STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86
(For candidates admitted from the academic year 2011-12)

SUBJECT CODE: 11EC/PC/RM24

M. A. DEGREE EXAMINATION, APRIL 2012
BRANCH III – ECONOMICS
SECOND SEMESTER

COURSE: MAJOR – CORE
PAPER : RESEARCH METHODOLOGY, COMPUTER APPLICATIONS – II (THEORY)
TIME : 2 HOURS **MAX. MARKS: 60**

SECTION – A

ANSWER ANY FOUR QUESTIONS. EACH ANSWER NOT TO EXCEED 300 WORDS.
(4 X 5 =20)

1. Discuss the role of statistics in economics and social science research.

2. Assume that a factory has two machines. Past record shows that machine 1 produces 30% of items of output and machine 2 produces 70 percent items of output. Further 5% of items produced by machine 1 were defective and 1 % of items produced by machine 2 are defective. If a defective item is drawn at random, what is the probability that the defective item drawn was produced by machine 1 or machine 2?

3. Explain the significance of multiple regression analysis. Brief the meaning of R^2 in a multiple regression model.

4. Differentiate between parametric and non-parametric tools for testing of hypothesis. Explain the significance of type I and type II errors in hypothesis testing.

5. What are the components of time series data? Explain the method of moving averages and its limitations

SECTION – B

ANSWER ANY TWO QUESTIONS. EACH ANSWER NOT TO EXCEED 1200 WORDS.
(2 X20 =40)

6. Discuss the various steps involved in hypothesis testing.

7. (a) Briefly discuss the procedure for fitting binomial distribution to observed data.
   (b) Eight coins are tossed simultaneously 256 times. No. of heads observed at each throw is recorded below.

No of head at a single throw:	0	1	2	3	4	5	6	7	8
No of times head occurred :	2	6	30	52	67	56	32	10	1

Find the expected frequencies. What are the theoretical values of mean and standard deviation?

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8. Fit a regression model of Y on X using OLS method for the below given data. What is the magnitude and direction of influence of X on Y.

X:	14	20	18	8	22	10	6
Y:	24	30	26	10	30	14	8

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COURSE: MAJOR – CORE
PAPER : RESEARCH METHODOLOGY, COMPUTER APPLICATIONS – II (PRACTICAL)
TIME : 1 HOUR **MAX. MARKS: 40**

Answer all Questions : **[4 * 10 Marks = 40 Marks]**

1. Represent the following two table with appropriate charts

Production of wheat among various states over the years in Million tones

States	2001	2021	2051
U.P	174	269	441
Bihar	103	140	163
M.P	81	110	128
Raj	55	52	114
A.P	76	90	93
T.N	62	71	69
Kar	53	66	70
Ker	33	38	39

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Relationship between two variables

Income	7000	17000	23000	14000	21000	19000	15000	25000	11000	10000	13000	5000
Expenditure	3000	7000	9687	6000	9000	8000	6000	10000	5774	5531	5991	1000

2. Consider the dataset **on Sectoral Savings.**

Sector	P	G	G	P	G	P	P	P
Savings	61	68.6	63.6	89.6	97.6	104.4	96.4	92.5
Income	727.1	790.2	855.3	965	1054.2	1159.2	1273	1401.4

Sector	G	G	P	G	P	P	G	G
Savings	112.6	130.1	161.8	199.1	205.5	167	235.7	206.2
Income	1580.1	1769.5	1973.3	2200.2	2347.3	2522.4	2810	3002

a. Fit a Regression model for the data to find the influence of Income on savings volume. (Write the Fitted Regression equation).

b. Interpret the fit of the model, meaning and the significance of intercept & coefficient in the model.

c. Test the hypothesis that there is no linear influence of savings on income.

d. Using **dummy variable regression model** Check if working in Private (P) or Government Sector (G) has an effect on savings apart from the variable income. Interpret coefficient and Intercept.

3. A corporate training institution claimed that its training program can greatly enhance the efficiency of the call centre employees. A big call centre sent some of its employees for the training program. The efficiency was measured by the number of deals closed by each employee in a one-month period. Data was collected for a one-month period before sending the employees for the training program. After the training program, data was again collected on the same employees for a one-month period. Test with appropriate statistical tool the validity of the claim made by the training institution that its training program improves efficiency.

Employee	1	2	3	4	5	6	7	8	9	10
Before	41	35	40	50	39	45	35	36	44	40
After	44	36	48	47	40	52	35	51	46	55
Employee	11	12	13	14	15	16	17	18	19	20
Before	46	42	37	34	38	42	46	39	40	45
After	39	40	36	39	50	46	49	42	51	37

4. Use appropriate statistical tool to show if there is any significant difference between the marks of students in 3 universities.

University	**Students**				
	1	**2**	**3**	**4**	**5**
A	90	70	60	50	80
B	70	40	50	40	50
C	60	50	60	70	60

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