SUBJECT CODE: 11EC/PC/RM24

M. A. DEGREE EXAMINATION, APRIL 2015
BRANCH III – ECONOMICS
SECOND SEMESTER

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

ANSWER ANY SIX QUESTIONS. EACH ANSWER NOT TO EXCEED 100 WORDS.
                                                    (6 X 10 = 60)

1. Explain the different components of Scientific Research.
2. What is Time series data? Discuss the components of time series data.
3. Given the data related to monthly family consumption (Y) in thousands of rupees and the monthly income (X) in thousand rupees estimate the marginal propensity to consume.

    Y : 45   56   25   89   38   65   79   19   100 61
    X : 60   75   30   110 50   79   98   25   140 80

4. Describe the steps involved in formulating and testing hypothesis.
5. Explain the process of estimating Compound Growth Rate of a Time Series using Semi – Log model.
6. Bring out the merits and demerits of different methods of primary data collection.
7.   An insurance company is interested in determining whether the different methods of training its field agents show significant differences in their performance. The yardstick to judge the performance field agents is the value of premium canvassed by them in a given time period. The insurance company chooses five field agents from each of the four batches which have been trained by different training methods. Test the significance at
5 % level of significance.

Premium orders obtained (Rs. In Lakhs)

Field Agent	Batch A	Batch B	Batch C	Batch D
1	10	9	8	12
2	15	11	9	11
3	8	13	12	12
4	9	14	10	9
5	13	13	11	11

8. Assume that family incomes in rupees are normally distributed with $\mu = 16000$ and $\sigma = 2000$. What is the probability that a family picked at random will have an income
    (a) between 15000 and 18000 (b) below 15000 (c) above 18000 and (d) above 20000 ?

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

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COURSE: MAJOR – CORE
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         (PRACTICAL)
TIME   : 1 HOUR   MAX. MARKS: 40

         ANSWER ALL QUESTIONS   (4 X 10 = 40)

Q – 1

Draw different types of diagrams with suitable data and examples of your own imagination.

Q-2

The demand for cable. The table below gives data used by a telephone cable
Manufacturer to predict sales to a major customer for the period 1968-1983.
    The variables in the table are defined as follows:

Y = annual sales in MPF, million paired feet
X_2 = gross national product (GNP), $, billions
X_3 = housing starts, thousands of units
X_4 = unemployment rate, %
X_5 = prime rate lagged 6 months
X_6 = Customer line gains, %

REGRESSION VARIABLES

Year	X_2, GNP	X_3, housing starts	X_4, unemployment, %	X_5, prime rate lag, 6 mos.	X_6, customer line gains, %	Y, total plastic purchases (MPF)
1968	1051.8	1503.6	3.6	5.8	5.9	5873
1969	1078.8	1486.7	3.5	6.7	4.5	7852
1970	1075.3	1434.8	5.0	8.4	4.2	8189
1971	1107.5	2035.6	6.0	6.2	4.2	7497
1972	1171.1	2360.8	5.6	5.4	4.9	8534
1973	1235.0	2043.9	4.9	5.9	5.0	8688
1974	1217.8	1331.9	5.6	9.4	4.1	7270
1975	1202.3	1160.0	8.5	9.4	3.4	5020
1976	1271.0	1535.0	7.7	7.2	4.2	6035
1977	1332.7	1961.8	7.0	6.6	4.5	7425
1978	1399.2	2009.3	6.0	7.6	3.9	9400
1979	1431.6	1721.9	6.0	10.6	4.4	9350
1980	1480.7	1298.0	7.2	14.9	3.9	6540
1981	1510.3	1100.0	7.6	16.6	3.1	7675
1982	1492.2	1039.0	9.2	17.5	0.6	7419
1983	1535.4	1200.0	8.8	16.0	1.5	7923

You are to consider the following model:

$$Y_i = \beta_1 + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 X_{6t} + u_t$$

a. Estimate the preceding regression equations.
b. What are the expected signs of the coefficients of this model?
c. Are the empirical results in accordance with a prior expectations?
d. Are the estimated partial regression coefficients individually statisti-
   cally significant at the 5 percent level of significance?
e. Suppose you first regress Y on X_2, X_3, and X_4 only and then decide to
   add the variables X_5 and X_6. How would you find out if it is worth
   adding the variables X_5 and X_6? Which test do you use? Show the nec-
   essary calculations.

Q- 3   Given the data Estimate Cobb Douglas production function and find out the
         elasticities.

output	labor	capital
38372840	424471	2689076
1805427	19895	57997
23736129	206893	2308272
26981983	304055	1376235
24589346	1809756	13554116
19462751	180366	1790751
28972772	224267	1210229
14313157	54455	421064
159921	2029	7188
47289846	471211	2761281
63015125	659379	3540475
1809052	17528	146371
10511786	75414	848220
1352890	963156	5870409
90120459	835083	5832503
39079550	336159	1795976
22826760	246144	1595118
38686340	384484	2503693
69910555	216149	4726625
7856947	82021	415131

Q – 4

ANOVA

The following four common dishes served at a hotel chain's restaurant are coded as follows :

Code	Dish Name
1	Chicken Platter
2	Honey Chicken
3	Chicken Spinach
4	Tandoori Chicken

..4

Rating :

In this problem we have considered four different non-vegetarian dishes that are being offered by RAJ Group Hotel Chain. The Hotel group wants to test, which of the above mentioned non-vegetarian dishes is being preferred by their target customers, that is, the HIG customers. At random these 28 respondents asked for their preference on the scale of 10 (1=not liked at all and 10 = most preferred dish) and these data have been tabulated.

(First column = Serial Number ; 2nd col = Dish type ; 3rd col = Rating ; 4th col = Location)

1.0	1.0	6.0	1.0
2.0	1.0	7.0	2.0
3.0	1.0	8.0	3.0
4.0	1.0	5.0	4.0
5.0	1.0	9.0	5.0
6.0	1.0	8.0	6.0
7.0	1.0	7.0	7.0
8.0	2.0	8.0	1.0
9.0	2.0	8.0	2.0
10.0	2.0	9.0	3.0
11.0	2.0	8.0	4.0
12.0	2.0	7.0	5.0
13.0	2.0	9.0	6.0
14.0	2.0	8.0	7.0
15.0	3.0	7.0	1.0
16.0	3.0	6.0	2.0
17.0	3.0	6.0	3.0
18.0	3.0	5.0	4.0
19.0	3.0	7.0	5.0
20.0	3.0	7.0	6.0
21.0	3.0	5.0	7.0
22.0	4.0	6.0	1.0
23.0	4.0	6.0	2.0
24.0	4.0	7.0	3.0
25.0	4.0	6.0	4.0
26.0	4.0	8.0	5.0
27.0	4.0	7.0	6.0
28.0	4.0	6.0	7.0

Test the significance by using ANOVA.

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