

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 86
(For Candidates admitted during the academic year 2011 – 2012 & thereafter)

SUBJECT CODE: 11EC/PE/DA34

M.A. DEGREE EXAMINATION NOVEMBER 2013
BRANCH III – ECONOMICS
THIRD SEMESTER

COURSE : ELECTIVE

PAPER : DATA ANALYSIS USING SPSS SOFTWARE

TIME : 3 HOURS

MAX.MARKS : 100

SECTION – A

I. Answer any FIVE questions in about 300 words each (5X8=40)

1. A marketing company has a sales staff of 20 sales executives. The data regarding their age and total sales achieved in their territories in a particular month are given table. Calculate basic descriptive statistics and interpret the results.

Sales Executives	Gender (M=1, F=2)	Age	Region	Sales (in Rs '000)
1	1	25	1	50
2	1	22	1	75
3	1	20	2	11
4	1	27	2	77
5	1	28	3	45
6	1	24	1	52
7	1	24	2	26
8	1	23	3	24
9	2	24	3	28
10	2	30	3	31
11	2	19	2	36
12	2	24	1	72
13	2	26	1	69
14	2	26	1	51
15	2	21	2	34
16	2	24	2	40
17	2	29	3	18
18	2	27	3	35
19	2	24	1	29
20	2	25	1	68

2. A business school in its advertisements claims that the average salary of its graduates in a particular lean year is at par with the average salaries offered at the top five business schools. A sample of 30 graduates, from the business school whose claim was to be verified, was taken at random. Their salaries are given in the table and average salary offered at the top five business school in that year as Rs. 7,50,000. Apply one sample 't' test and test the hypothesis.

Graduate Student	Salary (in Rs. '000)	Graduate Student	Salary (in Rs. '000)
1	750	16	770
2	600	17	680
3	600	18	670
4	650	19	740
5	700	20	760
6	780	21	775
7	860	22	845
8	810	23	870
9	780	24	640
10	670	25	690
11	690	26	715
12	550	27	630
13	610	28	685
14	715	29	780
15	755	30	635

3. Find the value of mean for this grouped data.

Class (in Rupees)	Frequency
1000-2999	50
3000-4999	110
5000-6999	162
7000-8999	100
9000-10999	83
11000-12999	45
13000-14999	25
15000-16999	15
17000-18999	8
19000-20999	2
Total	600

4. Find the correlation coefficient (r) between the sales and expenses for the data.

Company	A	B	C	D	E	F	G	H	I	J
Sales (in Rs. Crores)	100	100	110	120	130	130	130	120	120	100
Expenses (in Rs. Crores)	22	26	28	32	32	30	30	28	26	26

5. Calculate the regression line of Y on X and estimate the probable weekly sales volume for a score of 100 in the intelligence test.

Sales man	A	B	C	D	E	F	G	H	I	J
Test Score (X)	50	80	60	70	90	60	80	50	70	90
Sales (Rs.'000) (Y)	3.5	7	5	6	5	4	6	4	5.5	4

6. The following data gives depicts the expected sales (f_e) and the actual sales (f_o) of television sets for a company. Test whether there is a substantial difference between the observed values and expected values, using chi-square method.

actual sales (f_o)	57	69	51	83	44	48	35	37
expected sales (f_e)	59	76	55	75	39	53	30	48

7. Represent the following data with the help of a suitable diagram.

S.No.	Major Indian States	Literacy rate in 2011	
		Male	Female
1	Kerala	96.02	91.98
2	Maharashtra	89.82	75.48
3	Himachal Pradesh	90.83	76.60
4	Gujarat	87.23	70.73
5	Tamil Nadu	86.81	73.86
6	Haryana	85.38	66.77
7	Karnataka	82.85	68.13
8	West Bengal	82.67	71.16
9	Orissa	82.40	64.36
10	Punjab	81.48	71.34
11	Madhya Pradesh	80.53	60.02
12	Rajasthan	80.51	52.66
13	Uttar Pradesh	79.24	59.26
14	Andhra Pradesh	75.56	59.74
15	Bihar	73.39	53.33

SECTION – B**II. Answer any THREE questions in about 1200 words each (3X20=60)**

8. Given the following data for a sample of 18 respondents whom asked to rate on a 10 point interval scale, their attitude towards say, Tamarind brand of garments, before and after an advertise campaign was released for this brand. A rating of 1 represents “Brand is Highly Disliked” and a rating of 10 represents “Brand is Highly Liked”. Apply the paired sample ‘t’ test and interpret the results.

Sl.No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Before	3	4	2	5	3	4	5	3	4	2	2	4	1	3	6	3	2	3
After	5	6	6	7	8	4	6	7	5	4	6	7	4	6	8	4	5	6

9. Apply chi-square analysis and test is there any significant relationship between two variables, income and person(s) washing the clothes at home from the given data.

S.No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	2	4	3	2	2	4	1	1	2	3	4	4	3	2	2	3	2	1	2	3
B	1	2	1	1	1	2	2	1	2	1	3	2	1	2	2	2	1	1	2	2
S.No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	25	36	37	38	39	40
A	4	4	3	2	4	2	1	2	2	1	3	3	4	2	4	1	4	4	3	3
B	3	2	2	2	2	2	2	2	1	1	2	3	2	2	3	1	2	2	3	3

A – Income Code:1-< than 5000, 2-5001-10001, 3-10001-15000, 4- > than 15000

B – Person washing clothes at home : 1 – Yourself, 2 – Maid, 3 – Any other

10. A Pizza Corner sales manager would like to build a regression model consisting of six factors to predict the sales of pizzas from the given data for the past fifteen months sales, Number of delivery boys, cost of advertisements in Rs. '000, number of outlets, varieties of pizzas, competitors activities index and number of existing customers ('000). Apply multiple regression and suggest suitable recommendation to the sales manager.

S.No.	Sales	Boys	Adcost	Outlets	Varieties	Competitor	Customer
1	81	15	20	35	17	4	70
2	23	10	12	10	13	4	43
3	18	7	11	14	14	3	31
4	8	2	6	9	13	3	10
5	16	4	10	11	12	4	17
6	4	1	5	6	12	5	8
7	29	4	14	15	15	2	39
8	22	7	12	16	16	3	40
9	15	5	10	18	15	4	30
10	6	3	5	8	13	2	16
11	45	13	17	20	14	2	30
12	11	2	9	10	12	3	20
13	20	5	12	15	12	3	25
14	60	12	18	30	15	4	50
15	5	1	5	6	12	5	20

11. The manager of the Raymond's showroom in Bangalore proposes to his head office that as the sales have touched the target, they should promote further sales by showing some special gratitude to their loyal customers by providing them with 'first citizen club card'. This card customer will get points on every purchase that they made and after a certain number of points they will be benefited with 'Gift Hampers' and 'Free Purchase' based on the total number of points accrued.

S.No.	Loyalty	Freq.	Avgpurc	Years	S.No.	Loyalty	Freq	Avgpurc	Years
1	1	15	24765	3	10	2	29	45782	7
2	1	17	18654	4	11	2	40	59990	9
3	1	29	20320	1	12	1	13	8920	3
4	2	25	41230	7	13	2	33	23250	5
5	2	29	31462	5	14	1	3	35000	6
6	1	41	7232	6	15	1	18	14235	2
7	1	14	45352	4	16	1	21	25550	3
8	2	27	45320	5	17	2	39	33330	7
9	2	32	51500	5	18	2	31	31654	4

Freq-Frequency of purchase in a year, Avgpurc- average purchase by customer in a year.

Year- no. of years since the customer has been purchasing from the Raymond showroom.

Apply discriminant analysis to find out

- the percentage of customers that it is able to classify correctly.
- statistical significance of the discriminant function.
- which of the independent variables are relatively better in discriminating between 'loyal' and 'unloyal' customers.
- how to classify a new customer into one of those two groups – loyal/unloyal.

12. The Indian Airlines management is interested in determining the factors/variables customers prefer to fly Jet Airways. This survey consisted of 20 respondents who had recently flown with Jet Airways were asked to rate ten statements regarding their perceptions and attributes of the airline on a seven point scale 1=completely agree, 7=completely disagree. The ten statements were as follows:

- They (Jet Airways) are always on time.
- The seats are very comfortable.
- I love the food they provide.
- Their air-hostesses are very beautiful.
- My boss/friend flies with the same airline.
- The airlines have younger aircrafts.
- I get the advantage of a frequent flyer program.
- It (the flight timing) suits my schedule.
- My mom feels safe when I fly Jet.
- Flying Jet compliments my lifestyle and social standing in the society.

S.No	Ontime	Comfort	Food	Hostess	Boss	Airyong	Freqfly	Schedule	Mom	Lifestyle
1	1	2	2	3	1	1	2	2	1	2
2	2	1	2	2	5	2	2	1	2	2
3	1	3	1	4	6	2	3	2	5	3
4	3	4	2	2	4	3	2	4	1	3
5	4	2	4	3	2	4	3	2	3	3
6	5	3	4	2	6	5	2	2	1	2
7	2	1	2	1	5	2	1	1	4	1
8	1	2	1	4	2	2	4	2	2	4
9	1	1	1	2	3	1	2	2	5	2
10	2	5	1	3	1	1	2	5	3	2
11	2	4	2	6	3	2	5	5	2	5
12	2	1	2	4	5	2	4	1	1	4
13	3	2	3	7	6	3	6	2	2	6
14	2	2	2	5	2	1	5	2	3	5
15	2	1	1	2	2	2	2	1	1	2
16	1	1	1	3	4	1	3	1	2	3
17	4	1	4	2	6	4	2	1	5	2
18	1	2	2	2	2	2	2	1	7	2
19	2	3	2	1	2	2	2	3	7	3
20	2	1	2	3	1	2	3	1	5	3

Apply factor analysis and interpret the results.2
