

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2011-12)

SUBJECT CODE : 11CM/PC/RM24
M.Com. DEGREE EXAMINATION APRIL 2012
COMMERCE
SECOND SEMESTER

COURSE : CORE
PAPER : RESEARCH METHODOLOGY
TIME : 3 HOURS **MAX. MARKS : 100**

SECTION A

ANSWER ALL QUESTIONS:

10 x 2 = 20

1. What is called a Research?
2. Define Type I and Type II errors.
3. State the properties of a normal distribution?
4. What is called a hypothesis?
5. What do you understand by non-sampling errors?
6. The difference of sales data of an item in six shops before and after campaign are given below.

Difference	-5	-1	1	-7	-6	-3
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Can the campaign be judged to be a success? Test at 5% level of significance using paired t test.

7. A simple random sampling survey in respect of monthly earnings of semi skilled workers in two cities gives the following statistical information.

City	Mean Monthly Income in Rs.	Std. Dev. of Monthly Income in Rs	Sample size
A	695	40	200
B	710	60	175

Test the hypothesis at 5% significant level that there is no difference between monthly income of workers in two cities

8. A sample of 100 tyres are taken from a lot. The mean life of tyres is found to be 39,350 kms with a standard deviation of 3,260. Could the sample come from a population with mean life of 40,000 kms. Establish 99% confidence limits within which the mean life of tyres is expected to lie given the standard error of mean as 326.
9. To study the stature of father and the stature of son, a sample of 1600 is taken from the universe of fathers and sons. The sample study gives the correlation between the two to be 0.8. Within what limits does it hold true for the universe?

10. A random sample of size 16 has 53 as mean. The sum of the squares of the deviation taken from mean is 135. Can this sample be regarded as taken from the population having 56 as mean.

SECTION B

ANSWER ANY FIVE QUESTIONS:

5 x 8 = 40

11. Briefly explain the types of research.
12. What is a Research Design? Explain its meaning and significance.
13. Write short notes on
a. Likert Scale b. Semantic Differential scale
14. What is Research problem? State the need for defining a Research problem and selecting a Research problem.
15. Ten persons were appointed in an office and were given a training program. Their scores before and after training is given below. Apply t test and conclude if the training was effective?

Employees	A	B	C	D	E	F	G	H	I	J
Before training	25	20	35	15	42	28	26	44	35	48
After training	26	20	34	13	43	40	29	41	36	46

16. A milk producers union wishes to test whether the preference pattern of consumers for its product is dependent on income levels. A random sample of 500 individuals gives the following data.

Income Level	Product preferred		
	Product A	Product B	Product C
Low	170	30	80
Medium	50	25	60
High	20	10	55

Can you conclude that the preference patterns are independent of income level?

17. In a test given to two groups of students the marks obtained are as follows.

Group A	18	20	36	50	49	36	34	49	41
Group B	29	28	26	35	30	44	46	-	-

Examine the significance of difference between the arithmetic mean of the marks secured by the students of the above two groups.

18. The following data represents the number of units for production per day turned out by 5 different workmen using different types of machines.

Machine	Workmen				
	W1	W2	W3	W4	W5
A	46	48	46	35	40
B	40	42	38	40	44
C	49	54	46	48	51
D	38	45	34	35	41

Test whether the mean productivity is the same for the four brands of machine type.

SECTION C

ANSWER ANY TWO QUESTIONS:

2x 20 = 40

19. What do you mean by Research? Explain the different steps involved in a Research Process.
20. Explain the significance of a Research Report and narrate the various steps involved in writing such a report.
21. Five varieties of paddy P,Q,R,S and T were tried on a plot of 24x 20 feet. The whole experiment occupied an area of 80x120 feet. The varieties sown in each plot and the yield obtained in kg. are given below.

Q	T	R	P	S
80	70	134	102	82
T	S	Q	R	P
75	74	60	131	72
R	P	S	Q	T
100	80	77	74	59
P	R	T	S	Q
71	115	75	66	62
S	Q	P	T	R
72	50	84	75	88

Carry out an Analysis of Variance using Latin Square method with a correction factor of 80. Formulate the necessary hypothesis and draw the inference from the data.

22. To study the performance of three types of battery and three different types of inverter, the following readings were obtained.

Inverter	Battery A	Battery B	Battery C
Global	157	155	167
Trident	149	152	168
Macrotek	154	146	158

Formulate the necessary hypotheses and draw the inference from the data using Two way ANOVA at 5% level of significance.
