D 93369 **(Pages : 3)** **Name.....**

Reg. No.....

FIRST SEMESTER M.Com. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2020

(CBCSS)

M.Com.

MCM 1C 03—QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **four** *questions.*
Each question carries 2 *weightage.*

1. Define is Poisson Distribution ?
2. Differentiate between Simple hypothesis and composite hypothesis.
3. What is ANOVA ? Explain the Two-factor ANOVA.
4. Why Correlation is used ? Explain partial correlation.
5. Compare SPSS with MS Excel.
6. What is Type II error ? Explain.
7. Distinguish between parametric test and non-parametric test.

(4 × 2 = 8 weightage)

Section B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

8. What is SPSS and what are its usage ? Explain data view and variable view in detail.
9. The school nurse thinks the average height of 7^{th} graders has increased. The average height of a 7^{th} grader five years ago was 145 cm with a standard deviation of 20 cm. She takes a random sample of 200 students and finds that the average height of her sample is 147 cm. Are 7^{th} graders now taller than they were before ? Conduct a single tailed hypothesis test using a .05 significance level to evaluate the null and alternative hypotheses.

Turn over

10. Use the sign test to see if there is a difference between the number of days required to collect an account receivable before and after a new collection policy. Use the 0.05 significance level.

Before	:	33	36	41	32	39	47	34	29	32	34	40	42	33	36	27
After	:	35	29	38	34	37	47	36	32	30	34	41	48	37	35	28

11. The following information is obtained concerning as investigation of ordinary shops of small size :

	Shops		Total
	In towns	In villages	
Run by men	17	18	35
Run by women	3	12	15
Total	20	30	50

Can it be inferred that shops run by women are relatively more in villages than in towns ? Use χ^2 test.

12. A car hire firm has two cars, which it hires out day by day. The number of demands for a car on each day is distributed as a Poisson distribution with mean 1.5. calculate the proportion of days on which no car is used and the proportion of days on which some demand is refused. [$e^{-1.5} = 0.2231$]

13. Define the role and significance of quantitative decision methods. Distinguish between the qualitative and quantitative approaches of decision making.

14. A random sample of 10 boys had the following I.Q.'s : 70, 120, 110, 101, 88, 83, 95, 98, 107, 100. Do these data support the assumption of a population mean I.Q . of 100? Find a reasonable range in which most of the mean I.Q. values of samples of 10 boys lie.

(4 × 3 = 12 weightage)

Section C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. Ten competitors in a beauty contest are ranked by three judges in the following orders :

1st judge	:	1	6	5	10	3	2	4	9	7	8
2nd judge	:	3	5	8	4	7	10	2	1	6	9
3rd judge	:	6	4	9	8	1	2	3	10	5	7

Use the correlation co-efficient to determine which pair of judges has the nearest approach to common taste in beauty.

16. Set up an analysis of variance table for the following two-way design results :

Per Acre Production Data of Wheat

Varieties of seeds	A	B	C
Varities of fertilizers			
W	6	5	5
X	7	5	4
Y	3	3	3
Z	8	7	4

Also state whether variety differences are significant at 5% level. (All the figures are in metric tonnes)

17. Following is the distribution of students according to their height and weight :

	Weight in lbs			
Heights in inches	90–100	100–110	110–120	120–130
50–55	4	7	5	2
55–60	6	10	7	4
60–65	6	12	10	7
65–70	3	8	6	3

Calculate :

i) The co-efficient of regression ; and

ii) Obtain the two regression equations.

(2 × 5 = 10 weightage)