

D 93369

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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<sup>th</sup> graders has increased. The average height of a 7<sup>th</sup> 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<sup>th</sup> 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 an 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  $\chi^2$  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 :

1 <sup>st</sup> judge	:	1	6	5	10	3	2	4	9	7	8
2 <sup>nd</sup> judge	:	3	5	8	4	7	10	2	1	6	9
3 <sup>rd</sup> 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
Varieties 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 :

Heights in inches	Weight in lbs			
	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 :

- The co-efficient of regression ; and
- Obtain the two regression equations.

(2 × 5 = 10 weightage)