M.Com. DEGREE EXAMINATION,NOVEMBER 2018
I Year II Semester
Core Major
QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define Poisson distribution. Give an example .
2. The mean of Binomial distribution is 20,and the standard deviation is 4.Calculate n, p and q.
3. Define Type I error and Type II error in Testing of hypothesis.
4. Mention any two applications of χ^2distribution.
5. State the t test statistic.
6. State any two assumptions of ANOVA.
7. Distinguish between Partial and Multiple Correlations.
8. If $r_{12} = 0.86$, $r_{13} = 0.66$ and $r_{23} = 0.72$.Calculate $r_{12.3}$.
9. Define Optimum solution.
10. Define CPM and PERT.
11. Define the term pure strategy.
12. Define Transient and Steady State.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Define Normal distribution and state its properties.
14. Describe the procedure of hypothesis testing.
15. The average number of articles produced by two machines per day are 200 and 250 with standard deviation 20 and 25 respectively on the basis of records of 25 days production. can you regard both the machines equally efficient at 1% level of significance?
16. In a sample of 8 items ,the sum of the squared deviations of items from the mean was 94.5.In another sample of 10 observations, the value was found to be 101.7. Test whether the difference in the variances is significant at 5% level.

17. Solve the following LPP using simple method

    Maximize $Z = 4x_1 + 7x_2$

    Subject to $x_1 + 3x_2 \leq 12$

    $3x_1 + 4x_2 \leq 12$

    $x_1, x_2 \geq 0$

18. Find the optimal solution for the assignment problem with the following cost matrix.

	AREA				
Salesman		W	X	Y	Z
	A	11	17	8	16
	B	9	7	12	6
	C	13	16	15	12
	D	14	10	12	11

19. Solve the following game whose pay-off matrix is given below

9	3	1	8	0
6	5	4	6	7
2	4	3	3	8
5	6	2	2	1

Section C $(2 \times 15 = 30)$ Marks

Answer any **TWO** questions

20. Define chi - square statistic.Explain the procedure of testing the independence of attributes.

21. The following table gives the yields of 15 samples of plot under three varieties of seed.

A	B	C
20	18	25
21	20	28
23	17	22
16	15	28
20	25	32

    Test using Analysis of Variance whether there is a significant difference in the average yield of seeds.

22. Solve the following Transportation problem.

	A	B	C	Supply
F1	10	9	8	8
F2	10	7	10	7
F3	11	9	7	9
F4	12	14	10	4
Demand	10	10	8	

23. The demand for a seasonal product is as given below.

Demand during the season	Probability
40	0.10
45	0.20
50	0.30
55	0.25
60	0.10
65	0.05

The product cost Rs.60 per unit and sells at Rs.80 per unit. If the units are not sold within the season they will have no market value.

(i). Determine the optimum number of units to be produced.

(ii). Calculate EVPI and interpret it.