M.Com DEGREE EXAMINATION,APRIL 2019
I Year II Semester
Quantitative Techniques for Business Decisions

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

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

Answer any **TEN** questions

1. Define Probability.
2. Define Hypothesis.
3. What is Sampling Error?
4. Define ANOVA.
5. Define PERT and CPM.
6. Define Simplex method.
7. Short notes on Queuing theory.
8. Define Game Theory.
9. A candidate is selected for interview in three different posts. There are 3 candidates for the first post , 4 for the second post and 2 for the third post. What is the probability that he will be selected for one of the post?
10. If r_{12} =0.8, r_{13}= -0.4 and r_{23}= -0.56, find partial correlation coefficient.
11. Write the formulae for calculating Chi - Square distribution.
12. Define Correlation.

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

Answer any **FIVE** questions

13. What are the uses of t-test?
14. Distinguish between large sample and small sample.
15. Two salesmen A and B are working in a certain district. From a sample survey conducted by the Head office, the following results were obtained. State whether there is any significant difference in the average sales between the two salesmen:

	A	B
No. of sales	20	18
Average sales (in Rs.)	170	205
Standard Deviation(inRs.)	20	25

16. If R 1(23)=0 show that X1 is uncorrelated with X2 and X3.

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

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

18. A distributor of a certain product incurs holding cost of Rs.100 per unit per Week and shortage cost of Rs.300 per unit. The data on the sales of the product are given below:

Weekly sales(units)	0	1	2	3	4	5	6	7	8
No.of weeks Frequency:	0	0	5	10	15	15	5	0	0

How may units should the distributor buy every week? Also find E.V.P.I.

19. A random sample of 200 tins of coconut oil gave an average weight of 4.95kgs with a standard deviation of 0.21kg. Do we accept the hypothesis of net weight 5kgs per tin at 1% level?

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

Answer any **TWO** questions

20. State the procedure followed in testing a hypothesis.

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 whose cost matrix, availability at each plant and requirements at each warehouse are given as follows:

Plant	Warehouse				Availability
	W1	W2	W3	W4	
P1	190	300	500	100	70
P2	700	300	400	600	90
P3	400	100	600	200	180
Requirements	50	80	70	140	340

23. A milkman buys milk at Rs.2 per litre and sells for Rs.2.50 per litre. Unsold milk has to be thrown away. The daily demand has the following probabilities.

Demand(litres) :	46	48	50	52	54	56	58	60	62	64
Probability:	.01	.03	.06	.10	.20	.25	.15	.10	.05	.06

If each day's demand is independent of previous day's demand, how much litres should be ordered every day.