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**DHANALAKSHMI SRINIVASAN COLLEGE
OF ARTS & SCIENCE FOR WOMEN
(AUTONOMOUS)**

(For Candidates admitted from 2020-2021 onwards)

PG DEGREE EXAMINATIONS APRIL - 2021

M.COM & M.COM (CA)

COMMERCE & COMMERCE (CA)

QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Time: 3 Hrs

Max.Marks: 75

PART - A

CHOOSE THE CORRECT ANSWER

(10X1=10)

1. Classical Probability is also known as
 - a) Laplace's
 - b) Mathematical Probability
 - c) A priori probability
 - d) all of these.
2. If A is an event the conditional probability of A/A is equal to
 - a) 0
 - b) 1
 - c) ∞
 - d) finite
3. The rank correlation coefficient was developed by
 - a) Karl Pearson
 - b) Spearman
 - c) Bowley
 - d) Rank
4. When the two regression lines coincide then r is
 - a) 0
 - b) -1
 - c) 1 and -1
 - d) 1
5. The range of χ^2 test is
 - a) $-\infty$ to ∞
 - b) 0 to 1
 - c) $-\infty$ to 0
 - d) 0 to ∞
6. Level of significance is the probability of
 - a) Type I error
 - b) Type II error
 - c) Standard error
 - d) both a and b
7. A constraint in an LPP restricts
 - a) values of objective functions
 - b) value of decision variable
 - c) Use of available resource
 - d) all of the above
8. A necessary and sufficient condition for basic feasible solution to minimization LPP to be an optimum is that (for all j)
 - a) $z_j - c_j \geq 0$
 - b) $z_j - c_j \leq 0$
 - c) $z_j - c_j = 0$
 - d) $z_j - c_j > 0$
9. Given a system of 'm' simultaneous linear equations in 'n' unknowns ($m < n$), the number of basic variables will be -----
 - a) m
 - b) n
 - c) n - m
 - d) n + m
10. The method used for solving an assignment problem is called
 - a) Modi method
 - b) reduced matrix method
 - c) Hungarian method
 - d) None of the above

PART- B

ANSWER ALL THE QUESTIONS

(5X7=35)

11. a) State and prove Multiplication of probability

(OR)

b) A problem in statistics is given to three students A, B, C whose chances of solving it are $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ respectively. What is the probability that the problem will be solving?

12. a) Difference between correlation and regression

(OR)

b) Obtain the lines of regression, calculate the value of Y when X = 12

	X	Y
Average	7.6	14.8
Standard Deviation	3.6	2.5

Correlation coefficient $r = 0.99$

13. a) Explain the two types of errors in test of significance

(OR)

b) A random sample of 10 boys had the following I.Qs 70, 120,110, 101, 88,83,95,98,107,100. Do these data support the assumption of a population mean of I.Q of 100.

14. a) Explain the properties of Linear programming problem

(OR)

b) Write the procedure of simplex method

15. a) solve the following assignment problem

	I	II	III
A	8	7	6
B	5	7	8
C	6	8	7

(OR)

b) What are the steps involving in Vogels Approximation method?

PART-C

ANSWER ANY THREE QUESTIONS

(3X10=30)

16. The first bag contains 3 white balls, 2 red balls and 4 black balls. Second first bag contains 2 white balls, 3 red balls and 5 black balls and third first bag contains 3 white balls, 4 red balls and 2 black balls. One bag is chosen at random and from it 3 balls are drawn. Out of three balls 2 balls are white and 1 red. What are the probabilities that they were taken from first bag, second bag and third bag.

17. 10 competitors in a musical test were ranked by 3 judges A, B, C in the following order

Rank by A	1	6	5	10	3	2	4	9	7	8
Rank by B	3	5	8	4	7	10	2	1	6	9
Rank by C	6	4	9	8	1	2	3	10	5	7

Using rank correlation method, discuss the pair of judges has the nearest approach to common likings of music.

18. Using t – test decide whether the following two sets of observations came from the same populations.

Sample I	16	27	18	25	27	29	27	23	17
Sample II	16	16	20	16	20	17	15	21	

19. Use simplex method

$$\text{Max } Z = 3x_1 + 2x_2 \text{ subject to}$$

$$4x_1 + 3x_2 \leq 12$$

$$4x_1 + x_2 \leq 8$$

$$4x_1 - x_2 \leq 8, x_1 \text{ and } x_2 \geq 0$$

20. Obtain an initial basis feasible solution to following transportation problem by

(i) North west corner rule (ii) Least cost method

	D	E	F	G	Available
A	3	3	4	1	100
B	4	2	4	2	125
C	1	5	3	2	75
Requirement	120	80	75	25	300

