24. Solve the Simplex method

Minimize $z = 3x1 + 4x2$

Subject to

$$4x1 + 2x2 \leq 80$$
$$2x1 + 5x2 \geq 180$$
$$and\ x1, x2 \geq 0$$

25. Solve the following assignment problem.

Job	Man			
I	12	30	21	15
II	18	33	9	31
III	44	25	24	21
IV	23	30	28	14

I M.Com - Quantitative Techniques for Business Decisions

NOVEMBER 2019 **65159/KDA2B/ KDF2C**

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer any TEN questions.

1. What is meant by trial?
2. Define random experiment.
3. What is meant by small sample?
4. Define sampling error.
5. What is meant by parameter?
6. What is meant by analysis of variance?
7. Define F-distribution.
8. Define correlation.
9. What are the types of correlation?
10. Define regression.
11. Define feasible solution.
12. Write the difference between transportation and assignment problem.

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions.

13. The mean and variance of a binomial variable are 8 and 6. Find $p[x \geq 2]$.

14. Explain the central limit theorem.

15. What are the properties of the sampling distribution?

16. Calculate the rank correlation to the following data.

Age of husband (x)	35	34	40	43	56	20	38
Age of wife (y)	32	30	31	32	54	60	46

17. Derive the mathematical formulation of a transportation problem.

18. Obtain an initial basic feasible solution to the following T.P using least cost method.

From	To				
	D	*E*	*F*	*G*	
A	11	13	17	14	250
B	16	18	14	10	300
C	21	24	13	10	400
	200	225	275	250	

19. What are the properties of Poisson distribution?

PART C — (4 × 10 = 40 marks)

Answer any FOUR questions.

20. How do you find the mean and variance of binomial distribution?

21. Explain the methods of sampling.

22. Samples of two types of electric bulbs were tested for length of life and the following data were obtained.

	Type – I	Type – II
No. of Samples	8	7
Mean of the Samples (in hrs.)	1134	1024
S.D of the Samples(in Hrs.)	35	40

Test at 5% level whether the difference in sample means is significant (Table value of t for 13d. f = 2.16).

23. Find two regression lines to the following data.

X	10	12	14	16	18	20
Y	22	28	30	32	33	35

Estimate the value of y when x = 22 and the value of x when y = 38.