

M.B.A. DEGREE EXAMINATION, NOVEMBER 2008

International Business & E.Commerce

Quantitative Techniques

(CBCS - 2006 - 2007 Batch)

Duration : 3 Hours

Maximum : 100 marks

Part - A

(5 × 20 = 20)

Answer ALL Questions.

Each Question carries 20 marks

- 1 a. Solve the following LP model by simplex method

Maximize $Z = 3x_1 + 4x_2$

Subject to $x_1 + x_2 \leq 450$

$2x_1 + x_2 \leq 600$

$x_1, x_2 \geq 0$

(OR)

- b. i) Solve the minimal assignment problem whose effectiveness matrix is (14)

	1	2	3	4
I	2	3	4	5
II	4	5	6	7
III	7	8	9	8
IV	3	5	8	4

- ii) What do you mean by degeneracy in Transportation problem? (6)

- 2 a. A self-service store employs one cashier at its counter. Nine customers arrive on an average every 5 minutes while the cashier can serve 10 customers in 5 minutes. Assuming Poisson distribution for arrival rate and exponential distribution for service rate, Find
- i) Average number of customers in the system
 - ii) Average number of customers in queue or average queue length
 - iii) Average time a customer spends in the system
 - iv) Average time a customer waits before being served

OR

- b. Discuss the role of Time Services in business forecasting.

- 3 a. Explain the properties of Normal curve

OR

- b. A manufactured product has 2 defects per unit of product inspected. Using Poisson distribution, calculate the probabilities of finding a product without any defect, 3 defects and 4 defects.

(Given $e^{-2} = 0.135$)

- 4 a. Making use of the data summarized below, calculate the coefficient of correlation V_{12} :

Case	x_1	x_2	Case	x_1	x_2
A	10	9	E	12	11
B	6	4	F	13	13
C	9	6	G	11	8
D	10	9	H	9	4

(OR)

b. The following data gives the demand(x) and supply (y) in a market on 11 days. Obtain the regression of y on x

X: 61 72 73 73 63 84 80 66 76 74 72
 Y: 40 52 59 53 61 58 56 42 58 50 50

5 a. You are working as a purchase manager for a company. The following information has been supplied to you by two manufacturers of electric bulbs:

	Company A	Company B
Mean life in hours	1300	1248
Standard deviations (in hours)	82	93
Sample size	100	100

Which brand of bulbs are you going to purchase if you desire to take a risk of 5%

OR

b. From the following data find out whether there is any relationship between sex and preference of colour.

Colour	Males	Females	Total
Red	10	40	50
White	70	30	100
Green	30	20	50
Total	110	90	200

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