

END TERM EXAMINATION

SECOND SEMESTER [BBA] MAY-JUNE-2013

Paper Code: BBA106

BBA(B&I)106

BBA(TTM)106

BBA(MOM)106

Subject: Quantitative Techniques & Operations Research

Time : 3 Hours

Maximum Marks : 75

Note: Attempt five questions including Q.no.1 which is compulsory. Select one question from each unit. All questions carry 15 marks each.

Q1 Write short notes on **any five** of the following:-

- (a) Measures of Central tendency (b) Measures of Variation (c) Lorenz Curve
 (d) Correlation (f) Linear Programming Problem (e) Regression
 (g) Transportation Problem

UNIT-I

Q2 Calculate A.M., Median and Mode for the frequency distribution.

Variable	10-13	13-16	16-19	19-22	22-25	25-28	28-31	31-34	34-37	37-40
Frequency	8	15	27	51	75	54	36	18	9	7

Q3 The scores of two batsmen A and B in ten innings are as follows:-

A	32	28	47	63	71	39	10	60	96	14
B	19	31	48	53	67	90	10	62	40	80

Which batsman is more consistent in scoring?

UNIT-II

Q4 Two judges in a beauty competition rank the 12 entries as follows:-

X	1	2	3	4	5	6	7	8	9	10	11	12
Y	12	9	6	10	3	5	4	7	8	2	11	1

What degree of agreement in there between the judgement of the two judges?

Q5 Given $\sigma_x^2 = 9$ and Regression equation: $4x - 5y + 33 = 0$, $20x - 9y - 107 = 0$.Find (a) \bar{X} and \bar{Y} (b) σ_Y (c) γ (coefficient of correlation)**UNIT-III**Q6 Solve by simplex method: max. $Z = 10x_1 + 6x_2 + 4x_3$,

$$\text{s.t. } x_1 + x_2 + x_3 \leq 100, \quad 10x_1 + 4x_2 + 5x_3 \leq 600, \quad 2x_1 + 2x_2 + 6x_3 \leq 300,$$

$$x_1, x_2, x_3 \geq 0.$$

Q7 Solve the L.P.P. by the principle of duality:

$$\text{Minimize } Z = 7y_1 + 3y_2 + 2y_3,$$

$$\text{s.t. } y_1 + 2y_2 + y_3 \geq 5, \quad 2y_1 - y_2 + y_3 \geq 12, \quad \text{and } y_1, y_2, y_3 \geq 0.$$

UNIT-IV

Q8 Solve the transportation problem and check for optimality.

Factory		A	B	C	D	Capacity
	1	6	8	8	5	30
2	5	11	9	7	40	
3	8	9	7	13	50	
Demand	35	28	32	25		

Q9 Suggest optimal assignment schedule and the total maximum sale:

Sales persons	Sales territories			
	W	X	Y	Z
A	50	40	60	45
B	35	45	50	40
C	40	50	60	35
D	45	45	50	60
