

END TERM EXAMINATION**SECOND SEMESTER [BBA] MAY-JUNE 2018****Paper Code: BBA-104****Subject: Quantitative Techniques
(Batch 2017)****Time: 3 Hours****Maximum Marks: 75****Note: Attempt any five questions All questions carry equal marks.**

- Q1 The following table gives heights of boys and girls studying in a college. Find (i) Standard deviation of the heights of boys and girls taken together, (ii) Whose heights are more variable.

	Boys	Girls
Number	400	100
Average Height	68 inches	65 inches
Variance	9	4

- Q2 (a) Find the class intervals if the arithmetic mean of the following distribution is 33 and assumed mean 35:

Step Deviations	-3	-2	-1	0	+1	+2
Frequency	5	10	25	30	20	10

- (b) "Statistics is a bundle of lies". Comment.

- Q3 From the marks obtained by 8 students in Accountancy and Statistics, compute rank coefficient of correlation:

Marks in Accountancy	60	15	20	28	12	40	80	20
Marks in Statistics	10	40	30	50	30	20	60	30

- Q4 (a) Compute the regression coefficient of Y and X from the following data:

X	1	2	3	4	5
Y	140	180	140	180	200

- (b) If two regression coefficients are -0.9 and -0.3, what would be the value of the coefficient of correlation?

- Q5 Solve the LP problem using simplex method:

$$\text{Max. } Z = 3x_1 + 2x_2 + 5x_3$$

Subject to

$$x_1 + 2x_2 + x_3 \leq 430$$

$$3x_1 + 2x_3 \leq 460$$

$$x_1 + 4x_3 \leq 420$$

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

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- Q6 (a) Write the dual of the following linear programming problem:

$$\text{Minimize } Z = 5x_1 - 6x_2 + 4x_3$$

Subject to constraints

$$3x_1 + 4x_2 + 6x_3 \geq 9$$

$$x_1 + 3x_2 + 2x_3 \geq 5$$

$$7x_1 - 2x_2 - x_3 \leq 10$$

$$x_1 - 2x_2 + 4x_3 \geq 4$$

$$2x_1 + 5x_2 - 3x_3 \geq 3$$

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

- (b) What are the characteristics of dual problem and what are its advantages?

- Q7 Solve the following transportation problem whose cost matrix, availability at each plant and requirements at each warehouse are given as follows:

		Warehouse			
		W ₁	W ₂	W ₃	W ₄
Plant	P ₁	190	300	500	100
	P ₂	700	300	400	600
	P ₃	400	100	600	200
	Requirement	50	80	70	140

- Q8 A company has to assign four workers A, B, C and D to four jobs W,X,Y and Z. The cost matrix is given below:

		Jobs (cost in Rs.)			
		W ₁	W ₂	W ₃	W ₄
Worker	A	1000	1200	400	700
	B	600	500	300	800
	C	200	300	400	500
	D	600	700	300	1000

Suggest an optimal assignment schedule and the total cost pertaining thereto.

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