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KKP-6143

Seat No. 116

Second Year B. C. A. (Sem. - III) Examination

November / December - 2014

303 : Statistics & Optimization Technique

Time : 3 Hours] [Total Marks : 70

1 (a) Answer the following questions : 8

(1) Quartiles divide a series into ________ equal parts.

(2) Which measure of dispersion is ideal ?

(3) Standard deviation is independent of change of ________ but not of.

(4) List out the measure of central tendency.

(5) ________ dispersion is used to compare two series.

(6) Find C.V. of 11, 11, 11, 11, 11.

(7) What is mean deviation of observation having equal values ?

(8) ________ mode of –5, –7, –1, –2, –5, –5, 1, 2.

(b) Attempt any two : 10

(1) Calculate the mean and median for the following distribution :

Marks	0-20	20-40	40-60	60-80	80-100
Frequency	3	17	27	20	09

(2) Find the standard deviation from the following :

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	2	6	12	16	22	18	14

(3) The runs scored by two batsman in a season are given below. Which batsman may be regarded dependable ?

A	60	45	105	45	25	40	40	90	45	5
B	25	45	35	70	60	60	45	35	100	25

7110n2

2 (a) Answer the following questions :

(1) If two variables are perfectly positively correlated r = _____. 1

(2) In rank correlation if $\sum d^2 = 0, r =$ _____. 1

(3) The two regression coefficients are 0.8 and 0.2 hence correlation coeffcients is _____. 1

(4) The value of r^2 lies between _____ and _____. 1

(5) Give example of positive and negative correlation. 1

(6) What is correlaiton coefficient ? 2

(b) Attempt any two : 10

(i) From the following data calculate the co-efficient of correlation by Karl Perarson's method :

X	6	2	10	4	8
Y	9	11	9	8	7

Arithmetic mean of x and y series are 6 and 8 respectively.

(ii) From the following data obtain the two regression equations :

x	3	2	−1	6	4	−2	5	7
y	5	13	12	−1	2	20	0	−3

(iii) Find r using rank correlation method :

x	36	56	20	65	42	33	44	50	15	60
y	50	35	70	25	58	75	60	45	80	30

3 (a) Answer the following :

(i) Give the difference between PERT and CPM. 3

(ii) Explain the following terms : 2

(i) Activity

(ii) Event.

(iii) Define : 3

(i) Basic Feasible solution

(ii) Objective Funciton

(iii) Constraints.

(b) Attempt any two : 10

(i) Use the simplex method to solve the following L.P.P.

MAN. $Z = 3x_1 + 4x_2$

Subject to $2x_1 + 3x_2 \leq 16$

$2x_1 + x_2 \leq 8$

AND $x_1, x_2 \geq 0$

(ii) Solve the following L.P.P. by graphical method

Max $Z = 3x_1 + 4x_2$

Subject to $2x_1 + 5x_2 \leq 120$

$4x_1 + 2x_2 \leq 80$

and $x_1, x_2 \geq 0$

(iii) Draw a network diagram for the following activity :

Activity	*A*	*B*	*C*	*D*	*E*	*F*
Predecessar Activity	-	A	A	BC	-	DE
Duration	2	3	4	6	2	8

4 (a) Answer the following :

(1) What is unbalance Transportation problem ? How can it be balance ? 4

(2) Expalin Degeneracy in transportaiton problem. 2

(3) List out the method to find out initial basic feasible solution in transportaiton problem. 1

(b) Attempts any two :

(1) Obtain initial basic feasible solution for the given problem by N.W.C.M, L.C.M., V.A.M. **10**

		Destinations				
		D	E	F	G	Supply
Sources	A	11	13	17	14	250
	B	16	18	14	10	300
	C	21	24	13	10	400
	Demand	200	225	275	250	

(2) Find optimal solution for the following T.P.

		Destinations				
		I	II	III	IV	Supply
Sources	A	15	10	17	18	2
	B	16	13	12	13	6
	C	12	17	20	11	7
	Demand	3	3	4	5	

(3) Determine the optimal assignment schedule for the following :

		Job			
		A	B	C	D
Persons	I	10	12	19	11
	II	5	10	7	8
	III	12	14	13	11
	IV	8	15	11	9
