

Vidya Vikas Mandal's
Shree Damodar College Of Commerce & Economics Margao, Goa
S.Y.BCA , Semester IV, End Semester Examination ,April 2016

DATA ANALYSIS AND STATISTICAL TECHNIQUES (BCA 404)

Duration: 2 hours

Max. Marks: 50

Instructions: Figures to the right indicate maximum marks.
Non Scientific calculator is allowed.

Q1. Solve ANY 2: (2 x 5 marks)

1. Find Mode and Median for the following data:

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	6	10	20	16	8	6	2

2. What is coefficient of Mean Deviation about Mean for the number of runs scored?

Marks scored	15	25	35	45	55	65
No. of students	4	8	14	18	15	10

3. Find Quartile Deviation for the annual salaries of employees of a firm from the following data:

Annual Salary (in '00s rupees)	10-20	20-30	30-40	40-50	50-60
No. of employees	6	11	19	16	8

Q2. Solve ANY 2: (2 x 5 marks)

1. Calculate the Spearman's Rank correlation coefficient between Marks of Maths and Statistics :

Marks in Maths	34	56	34	56	76	20	36	56
Marks in Statistics	36	47	58	24	25	36	36	34

2. No. of pair of observation on x and y = 10

$$\sum x = 100, \sum y = 120, \sum x^2 = 1500, \sum y^2 = 6000, \sum xy = 120.$$

- a) Find the regression coefficients
b) Find slope of two regression lines and angle between them.

3. For bivariate data, the regression lines are $2x + y = 30$ and $3x + 5y = 42$.

- a) Find correlation coefficient between x and y.
b) Find mean of x and y

Q3. Solve ANY 2: (2 x 5 marks)

1. Define:

- a) Population
b) Simple random sampling
c) Stratified random sampling

- d) Systematic sampling
 - e) Cluster sampling
2. Write down pmf of Poisson distribution. Also, find mean of the distribution.
3. If p denotes the probability of a fuse working properly, the following procedure is adopted to test the hypothesis $H_0 : p = 0.1$ vs $H_1 : p = 0.8$. Retain H_0 if all are working. Calculate the probability of type I and type II error.

Q4. Solve ANY 2:

(2 x 5 marks)

1. Three unbiased coin are thrown. Find the probability that
 - a) At least one head.
 - b) At most one tail.
 - c) No tail.
2. Two cards from well shuffled pack of 52 cards is drawn at random . Find the probability that
 - a) At least two king card.
 - b) At most one red card.
3. If A and B are independent event such that $P(A) = 0.4$ and $P(B) = 0.3$,
 - a) Find $P(A \cup B)$
 - b) Find $P(A \cap B)$
 - c) Find $P(A^c \cup B^c)$
 - d) Find $P(A^c \cap B^c)$

Q5. Solve ANY 2:

(2 x 5 marks)

1. Five bolts drawn by a certain machine having lengths 3, 4, 3, 5, 2, 6 and 5 cms. Find an unbiased estimator of mean and variance.
2. For the following data, find Median using suitable graph.

Class – Interval	200-300	300-400	400-500	500-800	800-1000
Frequency	5	9	13	9	4

3. Find mean and variance for the following probability mass function:

X	-2	0	2	4
P(x)	0.3	0.4	0.2	0.1

-----X-----