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Shree Damodar College of Commerce & Economics Margao, Goa
S.Y.BCA , Semester IV, End Semester Examination May 2016

(Supplementary)

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 50th Percentile and 5th Decile 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

Comment on the value of 50th Percentile and 5th Decile.

2. What is coefficient of Mean Deviation about Median 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 coefficient of variation for the annual salaries of employees of a firm from the following data:

Annual Salary (in '00s rupees)	9	11	13	15	17
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 Cyber Security and Statistics :

Marks in Cyber Security	60	40	34	29	39	40	49	50
Marks in Statistics	40	28	29	32	65	60	60	55

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) Write down the regression lines

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. Write down pmf of Binomial distribution. Also, find mean of the distribution.
 2. Write down pmf of Poisson distribution. Also, find mean of the distribution.

3. In a bag there are 5 balls of which m are white to test $H_0 : m = 2$ vs $H_1 : m = 3$, 1 ball is drawn at random from a bag, reject H_0 if ball is white. Find the probability of type I and type II error.

Q4. Solve ANY 2:

(2 x 5 marks)

1. Two unbiased dice are thrown. Find the probability that
 - a) Sum of no. on uppermost face is up to 4
 - b) Sum of no. on uppermost face is at least 8
2. A box contain 2 white, 3 red and 4 green balls. Two balls are drawn at random. Find the probability that
 - a) At least two red balls.
 - b) At most one red ball.
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 2.3, 2.28, 2.31, 2.33, 2.28 cms. Find an unbiased estimator of mean and variance.
2. For the following data, find Mode 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:t

X	0	1	2	3
P(x)	0.3	0.4	0.2	0.1

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