

G.V.M.'s G.G.P.R. COLLEGE OF COMMERCE AND ECONOMICS

FARMAGUDI - PONDA

B.C.A. (SEMESTER-IV) END SEMESTER EXAMINATION - APRIL 2014

DATA ANALYSIS AND STATISTICAL TECHNIQUES

Duration: 2 hours

Max. Marks: 50

Instructions:

1. All questions are compulsory. However, internal choice has been provided for Q. 2 - Q. 5
2. Figures to the right indicate full marks.
3. Use of non-programmable calculators is allowed. Graph papers and Log books will be provided when asked.

Q.1 Fill in the blanks:

(10 x 1 = 10)

- a. For a pie diagram the total angle at the centre is _____.
- b. When the points plotted are (x, cf) the curve is called _____.
- c. A frequency table of two variates is called _____.
- d. In bar charts, the length of the bars represents _____.
- e. The height of a student is an example of _____.
- f. Parameter is _____.
- g. A function of sample values is called _____.
- h. The number of units in the population is called _____.
- i. The data collected by carrying out investigating inquiries is called _____.
- j. In the frequency distribution, data is divided into classes. The range of values in a class is called _____.

Q.2 a) Find the mean for the following data

(2 ½)

X	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
F	4	8	10	14	16

Q.2 b) What is a scatter diagram? Draw the scatter diagram for strong positive correlation between two variables.

(2 ½)

Q.2 c) The following table gives the distribution of monthly income of 600 families in a city; calculate the median and standard deviation.

(5)

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Monthly income	0 - 75	75 - 150	150 - 225	225 - 300	300 - 375	375 - 450	450 - 525
No. of families	69	167	207	65	58	24	10

OR

Q. II x) Draw a "less than" ogive for the data given below: (2 ½)

X	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
F	4	6	10	12	16

Q. II y) If $\sigma_x = 5$, $\sigma_y = 4$, $r = 0.6$, find the two regression lines if the mean values of x and y are 4 and 2 respectively. (2 ½)

Q. II z) Find the missing frequency if the median for the data given below is known to be 126. (5)

Class interval	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150
Frequency	5	f	20	10	7

Q. 3 a) A pair of dice is rolled. If the sum of 9 appears, find the probability that one of the dice shows 3 (2 ½)

Q. 3 b) State multiplication theorem.

From a pack of cards, two cards are drawn with replacement. What is the probability that both cards are kings? (2 ½)

Q. 3 c) A die is rolled 4 times, what is the probability of getting at least one six on its uppermost face? (5)

OR

Q. III x) A coin is tossed six times, What is the probability of getting no head? (2 ½)

Q. III y) From a pack of cards, two cards are drawn with replacement. What is the probability that both cards are hearts? (2 ½)

Q. III z) There are two bags, one of which contains 4 red and 7 green balls and the other 5 red and 10 green balls. A ball is drawn at a random from either of the two bags. Find the probability that it is green. (5)

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Q. 4 a) Calculate rank correlation coefficient for the following data: (5)

Marks in Statistics	65	66	67	68	67	70	67
Marks in English	67	68	65	68	72	72	69

Q. 4 b) If a poisson distribution has probability of 2 successes is equal to the the probability of 3 successes, find the probability of 4 successes. (given $e^{-3} = 0.04979$) (5)

OR

Q. IV x) There are 1000 workers in a factory. The following are the results of heights (x) and weights (y) of these workers:

Mean height = 68 inches, mean weight = 150kg, $\sigma_x = 2.5$ inches, $\sigma_y = 20$ kg, $r = 0.6$

Estimate:

- i. The height of a particular factory worker whose weight is 200 kg.
- ii. The weight of a particular factory worker who is 5 feet tall. (5)

Q. IV y) If the mean of a Poisson distribution is 2 find (i) $P(x=0)$ and (ii) $P(x=2)$ (5)

Q. 5 a) Business Today is conducting a survey between Panaji and Margao on the hourly wages of labourers. The result of the survey is as follows: (5)

City	Mean hourly wages	Std. Deviation	Sample
Panaji	Rs. 8.95	Rs. 0.40	200
Margao	Rs. 9.10	Rs. 0.60	175

Business Today wants to test the hypothesis at the 0.05 significance level that there is no difference between the hourly wages of the labourers in the cities.

Q. 5 b) Compare the advantages and disadvantages of the census method and survey method. A coin is tossed 900 times and heads appears 490 times. Does it support the hypothesis that the coin is unbiased? (5)

OR

Q. V x) Two samples of 100 and 150 tennis balls drawn from two different lots gave 8% and 10% defective balls respectively. Test whether both the lots come from the balls manufactured by the same process. (5)

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