Goa VidyaprasarakMandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE ANDECONOMICS
PONDA - GOA
B.Com. Choice Based Credit System (Semester – IV) Examination June 2022
BUSINESS STATISTICS - II

Duration: 2 hours   **Marks: 80**
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INSTRUCTIONS: i) Attempt all questions.
ii) Figures to the right indicate full marks.
iii) Use of non - programmable calculator is allowed.
iv) Graph paper may be used wherever necessary.

Q1. Answer the following:

A. Draw scatter diagram for the following
i) Perfect Positive Correlation
ii) Strong Negative Correlation
iii) Weak Positive Correlation   (3)

B. A's chance of winning a game is 1/3. Find his chance of winning at least
4 gamesout of 5.   (6)

C. A box contains 3 white, 4 red and 5 green marbles. 3 marbles are drawn at
random. Find the probability that i) all are of different coloursiii) at least
one is green.(7)

OR

Q 1. Answer the following:

X. Explain with examples the difference between positive and negative correlation.   (3)

Y.It is observed that 10% of S.Y.B.Com.studentsof a college pass in Statistics.
If a random sample of 5 students is taken, what the probability that twopass
in Statistics?   (6)

Z.There are 20 lottery tickets numbered from 1 to 20. One of them is drawn at random.
What is the probability that the number on the ticket is divisible
by3 or greater than 8?   (7)

Q 2. Answer the following:

A. From a pack of 52 playing cards, two cards are drawn with replacement.
What is the probability that both cards are kings?   (3)

B. Calculate the coefficient of correlation by Karl Pearson's method from
the following data:

x	2	5	8	10	6	3	1
y	4	6	7	8	5	4	3

(6)

C. The items produced by a certain machine include only one defective in every
        400 items. If the items are packed in boxes of 100, what is the probabilitythat
any given box of items will contain i) less than two defectives ii) more than two defectives.
(Given: $e^{-0.25} = 0.7788$)   (7)

OR

Q 2. Answer the following

X. What is the probability of getting a black or red marble from a bag containing
30 black and 20 red marbles?(3)

Y. Calculate the coefficient of correlation by Karl Pearson's method from
the following data

x	3	7	9	1	1
y	5	6	1	8	1

                                                        (6)

Z. The average number of complaints received by a supermarket per day is 3.3.
Find the probability of i) exactly 2 complaints ii) at least 2 complaintson a given
day?
(Given $e^{-3.3} = 0.037$)   (7)

Q 3. Answer the following:

      A. A sample of 50 bulbs from a large consignment showed a mean life of 52
         hours
      with a standard deviation of 4 hours. Find the 95% confidenceinterval for
      the mean life of the bulbs.(3)

B. Compute Spearman's coefficient of rank correlation from the following data

(6)

R_1	6	4	1	3	4	2
R_2	4	1	6	5	1	3

C. A wholesaler of mangoes claims that only 4% of the mangoes supplied
by him are bad. A random sample of 600 mangoes contained 36 bad
mangoes. Test the claim of the wholesaler at 5% L.O.S.   (7)

OR

    Q 3. Answer the following:

      X. In a sample of 1000 TV viewers, 340 watched a particular programme.
Find 99% confidence limits for the proportion of viewers who watch this
programme.   (3)

Y. Five students got the following percentage of marks in Mathematics andStatistics.

Marks in Mathematics	85	60	73	40	90
Marks in Statistics	93	75	65	50	80

Calculate Spearman's rank correlation coefficient. (6)

Z. A sample of 100 tyres is taken from a lot. The mean life of the tyres is found to be 39,350 km with a standard deviation of 3260 km. Could the sample come from a population with a mean life of 40,000 km at 1% L.O.S? (7)

Q 4. Answer the following:

A. If it rains, a dealer in umbrellas can earn ₹300 per day. If it does not rain, he can lose ₹80 per day. What is his expectation if the probability of a rainy day is 0.57? (3)

B. For a bivariate data, means of x and y are 65 and 67, standard deviation of x and y are 2.5 and 3.5 respectively. The coefficient of correlation is 0.6. Obtain the best valueof x when y = 80. (6)

C.A random sample of 400 items was drawn and the mean was found to be 99. Test whether this sample could have come from a population with mean 100 and standard deviation 8 at 1% level of significance? (7)

OR

Q 4.Answer the following:

X. A card is drawn from a pack of 52 playing cards. Find the probability that it is either a king or a spade. (3)

Y. From the following data, find x when y = 3.5

x	2	6	8	1
y	4	3	5	6

(6)

Z. A random sample of 500 items has sample proportion 0.15. Can we say that it is drawn from a population with proportion 0.2 at 5% level of significance? (7)

Q 5. Answer the following:

A. Explain Systematic sampling giving suitable example. (3)

B. In an I.Q. test administered to 1000 students in a school, the average score is 42 and the standard deviation 24. Find the number of students
   a) exceeding score 60 b) with scores between 18 and 90
   (Given that: Area under standard normal curve between
i) t = 0 and t = 0.75 is 0.2734
   ii) t = 0 and t = 1 is 0.3413
   iii) t = 0 and t = 2 is 0.4772)   (6)

C. From the following data, find y when x = 2

x	5	7	8	9	1
y	4	6	5	2	3

                                                                       (7)

OR

Q 5. Answer the following:

X. What is cluster sampling? Give a suitable example.   (3)

Y. The weekly wages of 1000 workers are normally distributed with mean ₹900 and standard deviation ₹50. Estimate the number of workers whose weekly wages will be i) between ₹900 and ₹1000 ii) more than ₹850.
(Given: Area under the standard normal curve between
i) t = 0 and t = 1 is 0.3413
ii) t = 0 and t = 2 is 0.4772)   (6)

Z. There are 1000 workers in a factory. The following are the results of the height (x) and weight(y) of the workers.
x = 68 inches; y = 150 kg ;σ_x = 2.5 inches; σ_y = 20 kg; r = 0.6
Estimate the weight of a particular factory worker who is 60 inches tall.   (7)

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