

PRABODHAN EDUCATION SOCIETY'S
VIDYA PRABODHINI COLLEGE OF COMMERCE, EDUCATION,
COMPUTER AND MANAGEMENT, VIDYANAGAR, PARVARI, GOA.

S.Y.B.COM SEMESTER END EXAMINATION

APRIL 2018-19 (REGULAR)

Sub: BUSSINESS STATISTICS – II (AS PER CBCS)

Semester: IV

Max. Marks: 80

Time: 2 hrs.

INSTRUCTIONS: 1. All the questions are compulsory however internal choice is available.

2. Use of calculator is allowed.

3. Figures to the right indicate marks allotted.

4. There are 5 main questions each carrying 16 marks.

5. You may answer randomly but every main question attempted should be answered serially.

Q 1) Attempt the following:

a) Define correlation and state methods of studying correlation. (3)

b) Calculate Karl Pearson's coefficient of correlation for the following data. (6)

X:	3	7	11	17	13	8
Y:	6	23	22	33	31	17

c) Obtain the regression equation y on x for the following data. (7)

X	4	7	3	6	4	9
Y	16	13	18	12	17	9

OR

Q 1) Attempt the following:

x) Draw a scatter diagram for strong positive correlation and weak negative correlation. (3)

y) Draw a scatter diagram for the following data and comment on it. (6)

X	5	3	2	7	4
Y	5	8	3	5	9

z) Find the missing value of y for the given data using regression analysis. (7)

X:	12	15	7	5	15	10
Y:	32	24	20	---	16	18

Q 2) Attempt the following:

x) Find coefficient of correlation 'r', given that $b_{xy} = 0.632$ and $b_{yx} = 0.941$. (3)

y) Calculate Spearman's rank coefficient of correlation for the following: (6)

Rank (X)	4	3	5	2	6	1
Rank (Y)	6	5	4	3	2	1

z) From a pack of cards two cards are drawn at random without replacement. Find the probability that: (1) both cards are kings (2) first card is black and second card is ace (7)

OR

Q II) Attempt the following:

- x) If $R = 0.765$, $n = 7$, find $\sum d^2$. (3)
- y) For a certain bivariate data, $n = 20$, $\bar{x} = 28$, $\bar{y} = 32$, $\sigma_x = 3.4$, $\sigma_y = 2.6$, $r = 0.752$, find the regression coefficient b_{xy} and also the regression equation x on y . (6)
- z) Out of the numbers 1 to 100, one number is selected at random. What is the probability that it is divisible by 9 or 5? (7)

Q 3) Attempt the following:

- a) Calculate mean and standard deviation for the binomial distribution when $n = 6$, $p = 0.7$ (3)
- b) The probability that a student will attain 1, 2, 3, 4 lectures in a particular day is 0.4, 0.2, 0.2 and 0.05 respectively. Find the expectation of number of lectures attend in a particular day. (6)
- c) In an examination answered by 2000 students in a school follows normal distribution, the average score is 74 and the standard deviation is 20.

Find: a) the number of students exceeding score 94.

b) the number of students with scores lying between 70 and 82.

(Given: area between $t = 0$ & $t = 1$ is 0.3413, area between $t = 0$ & $t = 0.2$ is 0.0793, area between $t = 0$ & $t = 0.4$ is 0.1554) (7)

OR

Q III) Attempt the following:

- x) Write any 4 properties of a Normal curve. (3)
- y) A coin is tossed thrice, if the second toss shows heads, find the probability of getting all heads. (6)
- z) An unbiased die is tossed 8 times. What is the probability that face "4" will be uppermost exactly
a) 5 times, b) more than 7 times. (7)

Q 4) Attempt the following:

- a) Write a note on Stratified sampling (3)
- b) A variate follows a Poisson distribution with mean 5, find :
i) $P(x = 0)$ ii) $P(x \geq 1)$ iii) $P(x = 4)$
(Given: $e^5 = 148.41$, $e^{-5} = 0.007$) (6)
- c) The number of notebooks carried by 20 students selected at random had an average 4 notebooks and standard deviation of 1.2. Assuming 5% level of significance, test the hypothesis that the students of the population of SYBCOM carries on an average 6 notebooks. (7)

OR

Q IV) Attempt the following:

- x) Explain the term Sample Enumeration. (3)
- y) The probability that a lecturer taking up an employment in a college will leave within twelve months is 0.4. What is the probability that out of 4 lecturers appointed,
(i) no lecturer (ii) one lecturer (iii) at least one lecturer
will leave within twelve months? (6)

- z) An educator claims that the average IQ of Vidya Prabodhini College students is at most 105 and that in a study made to test this claim 150 students selected at random, had an average IQ of 111.2 with a standard deviation of 7.2. Test the claim at 1% L.O.S. (7)

Q 5) Attempt the following:

- a) Write down the critical values for 1% and 5% Level of Significance. (3)
 b) Using Newton-Gregory Forward Interpolation formula estimate the value of y when $x = 12$. (6)

x	10	14	18	22	26
y	25	32	44	59	65

- c) Find the missing value in the following table. (7)

x	4	7	10	13	16
y	5.6	7.3	?	15.2	19.7

OR

Q V) Attempt the following:

- x) Define 1) null hypothesis 2) Alternate hypothesis. (3)
 y) The following data gives the number of paper bags made by NSS volunteers. Estimate when 4 students are sits together, how many bags can be made? (6)

No. of NSS Volunteers sitting together	5	10	15	20	25
Paper Bags made	242	514	823	1234	1705

- z) Using Binomial expansion method, find the missing value. (7)

X	20	26	32	38	44
Y	0.03	0.12	?	0.38	0.55