



# SHREE H. N. SHUKLA COLLEGE OF I.T. & MGMT.

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STREAM: BBA SEM – 3

PRELIMS PAPER – 2022-23

SUB: BUSINESS MATHEMATICS & STATISTICS

MARKS 70

Q.1 (A) What are the types of Correlation? (10)

(B) From the following data, compute by Karl Pearson's Method. (10)

X	2800	2000	2100	2000	2300	2500	2400	2300	1900	2100
Y	2.8	1.8	1.9	2.0	2.4	2.0	1.8	1.7	1.8	1.8

OR

Q.1 Find the correlation coefficient between price x and supply y and obtain its probable error. Also give its interpretation. (20)

Price (X)	Supply (Y)				
	70 - 80	60 - 70	50 - 60	40 - 50	30 - 40
9	-	-	-	2	2
11	-	-	3	3	1
13	-	2	6	2	-
15	2	3	2	-	-
17	1	1	-	-	-

Q.2 (A) The following data are obtained from 25 pairs of x and y. (10)

$$\sum x = 125, \sum y = 100, \sum x^2 = 650, \sum y^2 = 440, \sum xy = 508.$$

Find equations of regression lines. Also find correlation coefficient.

(B) Obtain two regression lines from the following data and estimate y, when x = 60.

$$\bar{X} = 48, \bar{Y} = 20, S_x = 6, S_y = 9, r = -0.6. \quad (10)$$

OR

Q.2 Find the regression line of y on x from the following data: (20)

y \ x	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
60 - 70	-	-	4	2	3
70 - 80	-	4	16	5	-
80 - 90	-	13	2	-	-
90 - 100	1	22	2	-	-
100 - 110	9	3	-	-	-
110 - 120	14	-	-	-	-

Q.3 (A) Explain the Events. (8)

(B) In a locality 65% can read Gujarati, 36% can read Hindi and 30% can read English. 18 % can Gujarati & Hindi. 17% can read Gujarati and English and 13% can read Hindi and English. 5% can read all the three languages. Find the probability that a person selected at random can read at least one of three languages. (7)

OR



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**Q.3 (A) Explain the following: (7)**

(i) Independent event (ii) Conditional probability (iii) Inverse probability

**(B) A bag contains 5 white and 7 black balls. Another bag contains 7 white and 8 black balls. A ball is taken at random from the first bag and placed it into the second bag without seeing color. Then one ball is drawn at random from the second bag. Find the probability that is a white ball. (8)**

**Q.4 (A) There is 100 tickets in lottery of Rs. 1 each. There is only one ticket in the lottery bearing a prize of Rs. 80. A person purchases 1 ticket. Find his expectation. (7)**

**(B) Six cubical dice are thrown for 1458 times. If 2 or 3 is regarded as success, find the probabilities of different number of successes and their expected frequencies. (8)**

OR

**Q.4 (A) Prove that: (7)**

(i)  $V(ax+b) = a^2V(x)$

(ii)  $V(ax + by) = a^2V(x) + b^2V(y)$

**(B) The mean and variance of a Binomial distribution are 15 and 6 respectively. Find n and p. (8)**