

B.B.A. Semester - 3 (CBCS) Examination
Oct/Nov - 2022 [NEW COURSE]
Business Statistics(Allied)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 (A) Write short note on Spearman's Rank Correlation. (07)

(B) Find Karl Pearsom's coefficient of correlation between x and y from the following data: (07)

X	0.21	0.20	0.24	0.23	0.25	0.26	0.28	0.30
y	1200	1500	1600	1900	1700	1800	2000	2100

OR

Q.1 (A) Write short note on Scatter Diagram method. (07)

(B) Find the coefficient of correlation between x and y. (07)

$$\sum(y - 5) = \sum x, \quad (\sum x + 2)^2 = 480, \quad v(y) = 5 \quad \sum xy = \sum y^2 = \sum y,$$

$$\sum(x - 5) = 12, \quad \sum y = 52.$$

OR

$$\sum(y - 5) = \sum x, \quad \sum(x - 2)^2 = 480, \quad v(y) = 5 \quad \sum xy = \sum y^2 - 5 \sum y,$$

$$\sum(y - 5) = 12, \quad \sum y = 12.$$

Q.2 (A) Write short note on Importance of study of Regression. (07)

(B) Find equations of regression lines from the data given below. (07)

$$n=10, \quad \sum x = 250, \quad \sum y = 300, \quad \sum y^2 = 10000, \quad \sum x^2 = 6500, \quad \sum xy = 7900.$$

OR

Q.2 Obtain regression equations and estimate y when x= 28 and x when y=70 from the following data. (14)

x→ y↓	5-10	10-15	15-20	20-25	25-30
10-20	15	-	-	-	-
20-30	10	6	-	-	-
30-40	2	14	3	-	-
40-50	-	8	24	12	7
50-60	-	-	3	11	35

Q.3 (A) If A, B and C are mutually exclusive and exhaustive events and $2P(A)=3P(B)=4P(C)$, then find $P(B \cup C)$ and $P(A \cup B)$. (07)

(B) Prove that $P(A \cup B) = P(A) + P(B) - P(A \cap B)$. (07)

OR

Q.3 (A) Define the following terms: (07)

(1) mutually Exclusive Events (2) Union Events (3) Exhaustive Events

(B) There are two urns containing respectively 5 red and 4 black balls, 3 red and 4 balls. (07)

An urn is selected at random and two balls are drawn at random from it. Find the probability that two balls are of different colours?

Q.4 (A) Let x a random variable with the following probability distribution: (07)

$X=x$	0	1	2	3
$P(X=x)$	$\frac{1}{3}$	$\frac{1}{2}$	K	$\frac{1}{6}$

Find (i) K (ii) $V(x)$, (iii) $V(2x-1)$

(B) Prove that $E(x + y) = E(x) + E(y)$ & $E(y) + E(x)(y)$ (07)

OR

Q.4 (A) State importance of normal distribution. (07)

(B) Parameters of normal distributions are 20.5 and 5. Find its Median, Mode, Quartile Deviation and Mean Deviation. (07)

Q.5 (A) State the properties of Binomial Distribution. (07)

(B) Five unbiased coins are tossed 3200 times. Find the expected frequencies of the distribution of possible number of Heads. (07)

OR

Q.5 (A) State the properties of Poisson Distribution. (07)

(B) x is a Poisson variate x $P(x=3)=P(x=4)$, Find $P(x=2)$ (07)
