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DCBD202

Reg. No. | | | | | | | | |

II Semester B.Com.-B.D.A. Degree Examination, September - 2023

COMMERCE

Business Statistics - 2

(CBCS Semester NEP Scheme)

Time : 2½ Hours **Maximum Marks : 60**

***Instructions to Candidates*:**

- Answer should be written in english only.

SECTION -A

Answer any Five of the following questions. Each question carries Two marks. **(5×2=10)**

1. a) State any two properties of Normal Distribution.
   b) Distinguish between correlation and Regression
   c) State any two application of CHI SQUARE TEST
   d) State significance of ANOVA
   e) If Regression coefficient of Y on X is -0.8 and regression coefficient of X on Y is - 0.56 then find correlation coefficient.
   f) Distinguish between one sided and two sided tests .
   g) State addition theorem of probability for any two events.

SECTION - B

Answer any Four of the following questions. Each question carries Five marks. **(4×5=20)**

2. You are given following data. Find the two regression equations.

Correlation coefficient between X and Y is 0.6

	X	Y
Arithmetic mean	20	25
Standard Deviation	5	4

[P.T.O.

3. Obtain 5 year moving averages for the following series of observations

Year	2007	2008	2009	2010	2011	2012	2013	2014
Annual sales	3.6	4.3	4.3	3.4	4.4	5.4	3.4	2.4

[Rs' 0000]

4. Two hundred randomly selected adults were asked whether TV shows as a whole are primarily entertaining, educational, or waste of time (only one answer could be chosen). The respondents were categorized by gender. Their responses are given in the following data.

	OPINION			
Gender	Entertaining	Educational	Waste of Time	Total
Female	52	28	30	110
Male	28	12	50	90
Total	80	40	80	200

Is this evidence convincing that there is a relationship between gender and opinion in the population interest?

5. The mean life of a sample of 100 electric bulbs produced by a company is found to be 1570 hours with SD of 120 hours. If μ is the mean life time of all the bulbs produced by the company , test the Hypothesis $\mu = 1600$ hours against the alternative hypothesis $\mu \neq 1600$ hours using level of significance of 0.05

(At this level for a two tailed test the critical values are - 1.96 and +1.96)

(OR)

An MBA applies for a job in two firms X and Y. The Probability of being selected in firm X is 0.7 and being rejected at Y is 0.5. The probability of at least one of his applications being rejected is 0.6. What is the probability that he will be selected by one of them?

6. Mention the uses of Time series analysis.

SECTION - C

Answer any Two questions. Each question carries Twelve marks.

(2×12=24)

7. To test the significance of variation in the retail prices of a commodity in 3 principal cities Mumbai, Kolkata and Delhi Four shops were chosen at random in each city and the prices who lack confidence in their mathematical ability observed in rupees were as follows.

Mumbai	16	8	12	14
Kolkata	4	10	10	6
Delhi	4	10	8	8

Do the data indicate that the price in 3 cities are significantly different?

8. Determine the equation of a straight line which best fits the data and estimate for the year 2020

Year	2014	2015	2016	2017	2018
Sales (in Rs'000)	35	56	79	80	40

9. From the following data, Form 2 regression lines and calculate husband age when the age of wife is 16

Husband Age	36	23	27	28	28	29	30	31	33	35
Wife Age	29	18	20	22	27	21	29	27	29	28

SECTION - D

Answer any One of the following question. Each question carries 6 marks. (1×6=6)

10. Explain the test procedure for testing population mean in case of large samples with known variance.

11. Explain the components of time series briefly.
