K24U 1689

Reg. No. : .....

Name : .....

NAVAJYOTHI COLLEGE
KANNUR DT.
670511
POST BAG CHERUPUZHA

Second Semester B.Com./B.Com. (Logistics) Degree (CBCSS-OBE-Regular/Supplementary/Improvement) Examination, April 2024

(2019 Admission Onwards)

COMPLEMENTARY ELECTIVE COURSE

2C01 COM : Quantitative Techniques for Business Decisions

Time : 3 Hours Max. Marks : 40

SECTION – A

Answer **any six** questions. **Each** question carries **1** mark.

1. How we can compute probable error ?
2. Write any two utility of time series analysis.
3. Write the regression equation Y on X.
4. What is type II error ?
5. What do you mean by line of best fit ?
6. What is two tail test ?
7. Find the total number of ways in which the letters of the word 'COIN' be arranged.
8. Given that bxy is 0.716 and byx is 1.11 find the value of correlation coefficient. **(6×1=6)**

SECTION – B

Answer **any six** questions. **Each** question carries **3** marks.

9. Write a short note on components of a time series.
10. You are given the following data about advertising and sales ;

	Advertising (In Lakhs)	**Sales (In Lakhs)**
Mean	10	90
S.D.	3	12

The correlation coefficient is 0.8

Calculate the two regression lines.

P.T.O.

11. Differentiate between linear and nonlinear correlation.
12. Define normal distribution. What are its properties ?
13. A box containing 5 green balls and 3 red colour balls. Find the probability of selecting 3 green balls one by one
    i) without replacement.
    ii) with replacement.
14. What are the uses of regression analysis ?
15. If 2% of electric bulbs manufactured by a certain company are defective. Find the probability that in a sample of 200 bulbs :
    i) less than 2 bulbs
    ii) more than 3 bulbs are defective ($e^{-4} = 0.0183$).
16. Differentiate between parametric and nonparametric test. **(6×3=18)**

SECTION – C

Answer **any two** questions. **Each** question carries **8** marks.

17. Find a 4 yearly moving average and the centered 4 year moving average from the following data.

Year	2008	2009	2010	2011	2012	2013	2014	2015
Output	301	454	393	414	424	464	466	492

18. Calculate Karl Pearson's Coefficient of correlation between demand and price.

Sales (lakhs)	50	60	55	65	75	70	75	80	90	80
Units ('000)	10	14	15	11	12	15	16	20	18	19

19. What do you mean by hypothesis ? Briefly explain the procedure for hypothesis testing. **(2×8=16)**

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K23U 1945

Reg. No. : .....

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NAVAJYOTHI COLLEGE
KANNUR DT.
670511
POST BAG No. 5, CHERUPUZHA

II Semester B.Com. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 Admission Onwards)
Complementary Elective Course
2C01 COM : QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Time : 3 Hours Max. Marks : 40

SECTION – A

Answer **any six** questions. **Each** question carries **1** mark.

1. What is perfect correlation ?
2. What is linear regression ?
3. In an examination paper on statistics 10 questions are set. In how many different ways can an examinee choose 7 questions ?
4. What is Type I error ?
5. What is seasonal variation in time series ?
6. How many different words can be formed with the letters of the word "SUNDAY" ?
7. What is independent event ?
8. Define Poisson distribution. **(6×1=6)**

SECTION – B

Answer **any six** questions. **Each** question carries **3** marks.

9. What are the merits of scatter diagram ?
10. From the following data obtain the regression equation X on Y.

X	91	97	108	121	67	124	51	73	111	57
Y	71	75	69	97	70	91	39	61	80	47

P.T.O.

11. What are the uses of Chi-square test ?

12. Find a 4 yearly moving average from the following data :

Year	2011	2012	2013	2014	2015	2016	2017	2018
Output	301	454	393	414	424	464	466	492

13. A committee of 4 has to be formed from among 3 Economists, 4 Engineers, 2 statisticians and 1 doctor.

    a) What is the probability that each of the four professions is represented on the committee ?

    b) What is the probability that the committee consists of the doctor and at least one economist ?

14. The following table gives the age of cars of a certain make and annual maintenance costs. Estimate the maintenance cost for 12 years old car.

Age of cars in years	2	4	6	8
Maintenance cost (in Rs. 100)	10	20	25	30

15. What are the uses of regression analysis ?

16. Suppose that a manufactured product has 2 defects per unit of products inspected. Use Poisson distribution and calculate the probability of finding a product

    a) Without any defect,

    b) 3 defects and

    c) 4 defects.

    (Given $e^{-2} = 0.135$). **(6×3=18)**

SECTION – C

Answer **any two** questions. **Each** question carries **8** marks.

17. Obtain rank correlation coefficient of the following data :

Candidate	A	B	C	D	E	F	G	H	I	J
Marks by first Judge	26	25	38	37	41	45	60	42	53	57
Marks by second Judge	52	25	30	35	48	77	38	43	68	64

18. Write a note on procedure for testing hypothesis.

19. Fit a straight line trend to the following data by the method of least squares. Also estimate the trend value for 2010.

Year	2003	2004	2005	2006	2007
Profit (Rs. in lakhs)	45	56	78	46	75

(2×8=16)

K22U 1245

Reg. No. : .....

Name : .....

JYOTHI COLLEGE KANNUR DT. 670511 POST AG No: 5, CHERUPUZHA

II Semester B.Com. Degree (C.B.C.S.S. – O.B.E. – Regular/ Supplementary/Improvement) Examination, April 2022

(2019 Admission Onwards)

COMPLEMENTARY ELECTIVE COURSE

2C01COM : Quantitative Techniques For Business Decisions

Time : 3 Hours Max. Marks : 40

PART – A

Answer **any six** questions from the following. **Each** question carries **1** mark.

1. What is Partial Correlation ?
2. What is Exhaustive Events ?
3. Define Regression Analysis.
4. What is a Type II error ?
5. What is Parametric Test ?
6. What is Spearman's Rank Correlation ?
7. What is an Independent Event ?
8. What is Null Hypothesis ? **(6×1=6)**

PART – B

Answer **any six** questions from the following. **Each** question carries **3** marks.

9. Distinguish between Correlation and Regression Analysis.
10. Probability that a man will be alive 25 years hence is 0.3 and the probability that his wife will be alive 25 years hence is 0.4. Find the probability that 25 years hence.
    i) both will be alive
    ii) only the man will be alive
    iii) at least one of them will be alive
11. Explain various components of Time Series.
12. From the following table showing age of cars of a certain make and annual maintenance costs, obtain the regression equation for cost related to age.

Age of cars (yrs.)	2	4	6	7	8	10	12
Annual Maintenance	1600	1500	1800	1900	1700	2100	2000

P.T.O.

13. Given $r = 0.8$, $\Sigma xy = 60$, $\Sigma x^2 = 90$, $\sigma y = 2.5$. Find the number of items.

14. Two persons A and B attempt independently to solve a puzzle. The probability that A will solve is 3/5 and the probability that B will solve is 1/3. Find the probability that the puzzle will be solved by at least one of them.

15. The trend equation fitted to a series of sales data is given by $Y = 3200 + 400x$ (origin at 2005, x unit = 1 year, y = no : of units sold yearly). The company has the production capacity of 7200 units in a year. Find by what year will the company's expected sales have equated its present production capacity assuming that trend will continue as before.

16. Explain the following terms :
    a) Sample space b) Sample point c) Event. **(6×3=18)**

PART – C

Answer **any two** questions from the following. **Each** question carries **8** marks.

17. The following table gives the distribution of total population and those who are wholly or partially blind among them. Find if there is any relation between age and blindness.

Age	No. of persons	Blind
0 – 10	100	55
10 – 20	60	40
20 – 30	40	40
30 – 40	36	40
40 – 50	24	36
50 – 60	11	22
60 – 70	6	18
70 – 80	3	15

18. In a study about tea habit in towns following data was observed in a sample size 100 each.
    Town A : 51% persons were male, 31% were tea drinkers and 19% were male tea drinkers.
    Town B : 46 % were male, 26% were tea drinkers and 17% were male tea drinkers.
    Is there any association between sex and tea habits ? If so, in which town it is greater ?

19. Explain Karl Pearson's Correlation, its properties and assumptions. **(2×8=16)**

K21U 3442

Reg. No. : .....

Name : .....

II Semester B.Com. Degree (CBCSS-OBE-Reg./Sup./Imp.) Examination, April 2021
(2019 Admission Onwards)
Complementary Elective Course
2C01COM – QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Time : 3 Hours Max. Marks : 40

PART – A

Answer **any six** questions from the following. **Each** question carries **1** mark.

1. Define Hypothesis.
2. Mention any two characteristics of Chi-square test.
3. A box contain 10 tickets each numbered 1 to 10. A ticket is drawn, what is the sample space ?
4. What is Binomial Distribution ?
5. A can kill a bird once in three shots. On this assumption he fires three shots. Find the probability that the bird is not killed.
6. Define nPr.
7. What is Perfect correlation ?
8. What is "Theorem of Inverse Probability" ? **(6×1=6)**

PART – B

Answer **any six** questions from the following. **Each** question carries **3** marks.

9. In how many ways can 3 girls and 5 boys be arranged in a row so that all the 3 girls are together ?

P.T.O.

10. From the following information set up two regression equations and also find out coefficient of correlation between X and Y. $\Sigma X = 120$; $\Sigma Y = 432$; $\Sigma XY = 4992$; $\Sigma X2 = 1392$; $\Sigma Y2 = 18252$; $N = 12$.

11. Following are the figures of sales for the past ten years. Determine the trend line by the Free-Hand Curve method

Year	1	2	3	4	5	6
Sales	80	115	105	135	125	150

(unit in Lakhs)

12. Comment on the following results. For a bivariate distribution,
    1) Coefficient of Regression of y on x is 4.2 and coefficient of regression of x on y is 0.50.
    2) bxy = – 0.82 and byx = 0.25.

13. In a certain sample of 2000 families, 1400 families are consumers of tea. Out of 1800 Hindu Families, 1236 families consume tea. Use Chi-Square test and state there is any significant difference between consumption of tea among Hindu and Non-Hindu Families.

14. Distinguish between Type I error and Type II error.

15. Godrej soap manufacturing company was distributing a particular brand of soap through a large number of retail shops. Before a heavy advertisement campaign, the mean sale per week per shop was 140 dozens. After the campaign a sample of 26 shops was taken and the mean sale was found to be 147 dozens with standard deviation 16. Can you consider the advertisement effective ?

16. State the 'Multiplication theorem' of probability with suitable example. **(6×3=18)**

PART – C

Answer **any two** questions from the following. **Each** question carries **8** marks.

17. What do you mean by testing of Hypothesis ? Explain its Procedure.

18. Fit a straight-line trend equation by the method of least squares and estimate the trend values. Also estimate the value of the year 2018.

Year	2008	2009	2010	2011	2012	2013	2014	2015
Value	80	90	92	83	94	99	92	104

19. A box of nine golf gloves contain two left handed and seven right handed gloves

    i) If two gloves are randomly selected from the box without replacement, what is the probability that (a) both gloves are right handed and (b) one is left handed and one is right handed glove ?

    ii) If three gloves are selected without replacement, what is the probability that all of them are left handed ?

    iii) If two gloves are selected with replacement, what is the probability that all of them are right-handed ? **(2×8=16)**

K20U 0442

Reg. No. : .....

Name : .....

II Semester B.Com. Degree CBCSS (OBE) Regular Examination, April 2020
(2019 Admission)
COMPLEMENTARY ELECTIVE COURSE
2C01COM : Quantitative Techniques for Business Decisions

Time : 3 Hours Max. Marks : 40

PART – A

Answer **any six** questions from the following. **Each** question carries **1** mark.

1. In how many ways the letters of the word "SIMPLE" can be arranged ?
2. What is Non-Parametric test ?
3. Distinguish between permutation and combination.
4. What is moving average ?
5. What is scatter diagram ?
6. Define probability.
7. What is linear regression ?
8. Write a note on least square method. **(6×1=6)**

PART – B

Answer **any six** questions from the following. **Each** question carries **3** marks.

9. The ranks of 6 persons before and after a training course are as follows

Persons	A	B	C	D	E	F
Rank before	3	5	4	2	1	6
Rank after	4	6	5	2	1	3

Compute Spearman's Rank Correlation.

P.T.O.

10. Given the following data, what would be the possible yield of rice per acre when rainfall is 29 cm ?

	Rainfall	Yield
Mean	25	40
Variance	9	36

Coefficient of correlation between rainfall and yield = 0.8.

11. What are the different types of regression analysis ?

12. In a random arrangement of the letters of the word Allahabad, find the chance that the vowels occupy the even places.

13. From the following data obtain the two regression equations.

X	6	2	10	4	8
Y	9	11	5	8	7

14. Explain :

a) Complementary events

b) Dependent events

c) Equally likely events.

15. From the regression equations find the mean values of X and Y series.

$8x - 10y = -66$

$40x - 18y = 214$

16. A bag contains 7 red, 12 white and 4 green balls. What is the probability that (a) 3 balls drawn are all white (b) 3 balls drawn are one of each colour ?

(6×3=18)

PART – C

Answer **any two** questions from the following. **Each** question carries **8** marks.

17. Test whether the accidents occur uniformly over week days on the basis of the following information.

Days of the week	Sun.	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.
No. of accidents	11	13	14	13	15	14	18

18. Calculate the long-term trend and short-term oscillations with a three year period from the following data.

Year	1999	2000	2001	2002	2003	2004	2005	2006
Output of tea tons	1632	1557	1652	2100	2620	3120	3236	3562

19. What is Chi Square test ? Explain its procedure and applications. **(2×8=16)**