

B.Com. - I CBCS Pattern Semester-II  
**UCA2C06 - Statistics Techniques & Business Mathematics-II**

P. Pages : 4

Time : Three Hours



**GUG/W/23/10654**

Max. Marks : 60

- Notes : 1. All questions are compulsory.  
2. All questions carry equal marks.

1. a) Explain the importance of Index Number. 6
- b) From the following data calculate Dorbish & Bowley's Index No. 6

Commodity	2018		2019	
	Price	Quantity	Price	Quantity
Jawar	4	7	6	8
Wheat	2	5	3	4
Rice	3	4	5	5
Dal	6	2	8	3

**OR**

- c) Find out Laspeyer's Index Number, Paasches Index Number. Dorbish & Bowley's Index Number. Fisher's Ideal Index Number. 12

Article	2017		2016	
	Price	Total value	Price	Total value
x	4	48	5	50
y	7	49	8	48
z	5	20	6	18

2. a) Calculate coefficient of rank correlation. 6
- x = 87 82 35 75 37  
y = 29 63 52 46 48
- b) Calculate coefficient of correlation between x & y series. 6
- x = 20 24 28 32 36  
y = 14 18 22 26 30

**OR**

- c) Following data given the various values of two variables 12
- x = 42 44 58 55 89 98 66  
y = 50 49 53 58 64 76 58
- Find out:
- Coefficient of correlation.
  - Two regression equation / line of regression.
  - Mostly likely values of x when y = 34
  - Mostly likely values of y when x = 47

3. a) In an Anti-malaria campaign in a certain area. Quinine was administered to 812 person out of a total population of 3248. The no. of fever cases as below. 6

Treatment	Fever	No fever	Total
Quinine	20	792	812
No. Quinine	220	2216	2436
Total	240	3008	3248

Discuss the usefulness of Quinine is checking malaria Table value of  $\chi^2$  for one degree of freedom at 5% level of significance is 3.84.

- b) Among 64 off spring of a certain cross between guinea pigs 34 were red, 10 were black & 20 were white. According to the genetic model these number should be in the Ratio 9:3:4 6  
Are the data consistent with the modes at the 5% level. You are given that the value of  $\chi^2$  with its probability of 0.05 being exceeded is 5.99 for V = 2 & 3.84 for V = 1.

**OR**

- c) Following Table represents the number of boys and girls who choose the five possible answer to an item of an altitude scale. 12

	Strongly Approved	Approved	Indifferent	Dis approved	Strongly Disapproved
Boy	50	60	15	50	25
Girls	20	30	10	30	30

Do these data indicate a significant six different in the altitude toward this item. The table value of  $\chi^2$  for 4 degree of freedom at 5% level of significance is 9.49.

4. a) Total salary of two employees is Rs. 345. The proportion of their salary is 7:8 Find the salary of each. What reduction should be made in their salary so that proportion become 5:6. 6  
b) Mr. X Marks his good @ 40% above cost and allow 20% discount on the market price. Find out the percentage of profit or loss the makes. 6

**OR**

- c) A grain merchant purchase 50 quintal of good rice @ Rs. 1100 per quintal and 5 quintal of cut rice @ Rs. 600 per quintal. He mixes them and sells it in retail @ Rs. 12 per kg. Find out % of profit or loss on sale made by him. 6  
d) A, B and C are cricket player. Their ratio of runs A:B = 5:3 and B:C = 4:5. Their total runs were 235 find out the runs of each player. 6

5. Write short note on.

- a) Write the use of Index Number. 3  
b) Define correlation. 3  
c) Important of Chi-Square 3  
d) Define Ratio & proportion. 3

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- सुचना :- 1. सर्व प्रश्न अनिवार्य आहे.  
2. सर्व प्रश्नांना समान गुण आहेत.

- |    |    |  |    |
|----|----|--|----|
| 1. | अ) | निर्देशांकाचे महत्व स्पष्ट करा.              | 6  |
|    | ब) | इंग्रजी माध्यमानुसार                         | 6  |
|    |    | किंवा  |    |
|    | क) | इंग्रजी माध्यमानुसार                         | 12 |
| 2. | अ) | इंग्रजी माध्यमानुसार                         | 6  |
|    | ब) | इंग्रजी माध्यमानुसार                         | 6  |
|    |    | किंवा  |    |
|    | क) | इंग्रजी माध्यमानुसार                         | 12 |
| 3. | अ) | इंग्रजी माध्यमानुसार                         | 6  |
|    | ब) | इंग्रजी माध्यमानुसार                         | 6  |
|    |    | किंवा  |    |
|    | क) | इंग्रजी माध्यमानुसार                         | 12 |
| 4. | अ) | इंग्रजी माध्यमानुसार                         | 6  |
|    | ब) | इंग्रजी माध्यमानुसार                         | 6  |
|    |    | किंवा  |    |
|    | क) | इंग्रजी माध्यमानुसार                         | 12 |
| 5. |    | थोडक्यात उत्तरे लिहा.                        |    |
|    | अ) | निर्देशांकाचे उपयोग लिहा.                    | 3  |
|    | ब) | सहसंबंधाची व्याख्या लिहा.                    | 3  |
|    | क) | $x^2$ चाचणीचे महत्व लिहा.                    | 3  |
|    | ड) | गुणोत्तर व प्रतिशत प्रमाण थोडक्यात विशद करा. | 3  |

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- सुचनाएँ :- 1. सभी प्रश्न अनिवार्य हैं।  
2. सभी प्रश्नों के अंक समान हैं।

- |    |   |    |
|----|---|----|
| 1. | न्यादर्श के महत्व स्पष्ट कीजिए।                         | 6  |
|    | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | <b>अथवा</b>   |    |
|    | अंग्रेजी माध्यम के अनुसार।                              | 12 |
| 2. | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | <b>अथवा</b>   |    |
|    | अंग्रेजी माध्यम के अनुसार।                              | 12 |
| 3. | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | <b>अथवा</b>   |    |
|    | अंग्रेजी माध्यम के अनुसार।                              | 12 |
| 4. | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | अंग्रेजी माध्यम के अनुसार।                              | 6  |
|    | <b>अथवा</b>   |    |
|    | अंग्रेजी माध्यम के अनुसार।                              | 12 |
| 5. | संक्षिप्त में उत्तर लिखिए।                              |    |
|    | अ) न्यादर्श का उपयोग लिखिए।                             | 3  |
|    | ब) सहसंबंध की परीभाषा लिखिए।                            | 3  |
|    | क) काई-वर्ग चाचणी का महत्व लिखिए।                       | 3  |
|    | ड) गुणोत्तर और प्रतिशत प्रमाण अर्थ संक्षिप्त में लिखिए। | 3  |

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