

B.C.C.A.-II (CBCS Pattern) Semester - IV  
**UBCCAT401 - Statistics Techniques and Business Mathematics-II**

P. Pages : 2

Time : Three Hours



GUG/S/23/12045

Max. Marks : 80

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

1. a) What is Regression? How is this concept useful in Business Forecasting. **8**

b) From the data given below estimate the most likely Height of father whose son Height is 70 Inches. **8**

Particular	Height	S.D.
Father	67	3.5
Son	65	2.5

$r = 0.8$ .

**OR**

c) Percentage of marks of 10 students in M.A. and M.Com examination are as follow under similar conditions how much student scoring 76 marks in M.Com may expect in M.A. Find out coefficient of correlation. Do you consider the two regression equation are important. **16**

Marks in M.A.	65	58	40	67	72	48	54	76	54	66
Marks in M.Com	70	75	62	45	78	60	40	64	45	61

2. a) Find out Index number by Laspeyere's method, Paasches method & Durbish and Bowley's method. **8**

Commodity	2017		2018	
	Price	Quantity	Price	Quantity
Rice	8	50	12	60
Wheat	3	20	4	40
Jawar	10	24	15	30
Bajra	5	100	4	200

b) Given that: - **8**

$$\in p_1q_0 = 273$$

$$\in p_1q_1 = 156$$

$$\in p_0q_0 = 198$$

$$\in p_0q_1 = 264$$

Find out Fisher's Ideal Index Number.

**OR**

c) Find out Index Number by all method. **16**

1) Laspeyere's Method

2) Paasches method

3) Dorbish & Bowley's method

4) Fisher's Ideal Index Number

Articles	2016		2017	
	Price	Total Value	Price	Total Value
A	5	50	4	48
B	8	48	7	49
C	6	18	5	20

3. a) Random sample of 200 villages was taken from Kanpur district & the average population per village was found to be 420 with a standard deviation of 50. Another random samples of villages from the same district gave an average population of 480 per village with a standard deviation of 60. If the difference between the average of two sample statistically significant. 8

- b) Among 64 off spring of a certain cross between guinea pigs 34 red, 10 were black & 20 were white. According to the genetic model these number should be in the ratio 9:3:4. Are the data consistent with the model at the 5% level. 8

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 gives the yield of 4 plots each of three varieties of wheat. Find out the variety difference are significant. 16

		Yield			Total
A	26	27	28	31	112
B	18	19	21	22	80
C	16	18	19	19	72
					264

Table value of F is 33.6.

4. a) A mixture of 70 litre of Acid and water contain 10% of water. How much water must be added to make water 37% of the resulting mixture. 8
- b) A sum of money borrowed on 15<sup>th</sup> Oct 2017 at 17.5 p.a. to be repaid on 10<sup>th</sup> March 2018 of the following year with 490 Rs. simple interest what was the sum. 8

**OR**

- c) 15 person require 10 days to plough a field of 20 acers. How many days 30 workers will take to plough a field of 30 acers. 8
- d) Find the principal for which the difference of simple interest and compound interest for 2 year Rs. 20 at 4% p.a. 8

5. Write short note on-

- a) Explain the types of regression. 4
- b) What is meant by Index Number. 4
- c) Explain uses of  $\chi^2$  test. 4
- d) Difference between simple Interest & compound interest. 4

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