UBCCAT401 - Statistics Techniques and Business Mathematics-II

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

1. a)   What is meant by Regression Analysis?   **8**

     b)   From the following data find the most probable value of 'X' if 'Y' = 90.   **8**

	X	Y
Mean	18	100
Standard Deviation	14	20

Coefficient of correlation is 0.8

OR

     c)   From the following data given below find out   **16**
         i)   The Two Regression equations.
         ii)   The most probable value of 'Y' when 'X' = 30
         iii) Coefficient of correlation

X:	25	28	35	32	31	36	29	38	34	32
Y:	43	46	49	41	36	32	31	30	33	39

2. a)   From the following information calculate Paasche's Index Number.   **8**
        $\Sigma p_0 q_1 = 352$ $\Sigma p_0 q_0 = 282$
        $\Sigma p_1 q_1 = 576.6$ $\Sigma p_1 q_0 = 467.6$

     b)   From the data given below compute price index no.   **8**

Items	Price 2020	Price 2022	Quantity 2020
A	50	60	5
B	10	12	11
C	7	8	13
D	4	5	20

OR

     c)   Find out Index No by-   **16**
         i)   Laspeyre's method
         ii)   Paasche's method
         iii) Fisher's Ideal method
         iv) Dorbish & Bowley's method

Commodity	Base year Price	Base year Qty.	Current year Price	Current year Qty.
Food	175	35	140	45
Rent	75	20	100	18
Clothing	25	14	30	22
Fuel	50	15	60	25
Misc.	60	25	85	30

3. a) On the basis of information given below about the treatment of 200 patient suffering from a disease, state whether the new treatment is comparatively superior to the conventional treatment.   **8**

Treatment	No of Patients	
	Favourable response	No response
New	60	20
Conventional	70	50

Table value of $x^2 = 3.841$

b) You are given the following data.   **8**

	Intelligent sons	Unintelligent sons
Skilled father	24	12
Unskilled father	32	32
Total	56	44

Table value of $x^2 = 3.841$.

OR

c) Set a table of analysis of variance for the yield of three straigns of wheat planted in randomly blocks.   **16**

	Straigns				
A	20	21	23	16	20
B	18	20	17	15	25
C	25	28	22	28	32

5% value of f, all the given numbers & degree of freedom is 3.88.

4. a) The ratio of the numbers of boys and girls in a class is 7:5. If the numbers of boys in a class is 35. Find the numbers of girls.   **8**

b) The simple interest of Rs. 150000 for the period of three years is Rs. 72,000. What is the rate of interest?   **8**

OR

c) The ratio between the age of mother and son is 5:2 If the sum of their ages is 77 years. Find out the ages of mother and son.   **8**

d) Akhil took a loan of Rs. 2,10,000 for his shop. After two years he paid Rs. 2,68,800 with interest. Find out the rate of interest.   **8**

5. Short Note.

a) Regression line.   **4**

b) Significance of Index Number.   **4**

c) Define Analysis of Variance.   **4**

d) Meaning of simple interest and compound interest.   **4**

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