

B.B.A. - I CBCS Pattern Semester-II
UCB2C07 - Statistical Methods for Business-II

P. Pages : 2

Time : Three Hours



GUG/W/23/10595

Max. Marks : 80

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

1. a) What is regression? Explain the importance of regression. 8
b) You are given below the following information about advertising and sales. 8

	Adv. Exp (X) (Rs. Lakhs)	Sales (Y) (Rs. Lakhs)
Mean	10	90
S.D.	3	12

Correlation Coefficient = 0.8

- a) Calculate the two regression lines
b) Find the likely sales when advertisement expenditure is Rs. 15 lakh.
c) What would be the advertisement expenditure if company wants to attain a sale target of Rs. 120 lakh?

OR

- c) Two lines of regression are given as under: 16
 $6x + 10y - 119 = 0$
 $-30x + 45y + 180 = 0$
The variance of Y IS known to be 4.
Find
i) The mean values of X and Y.
ii) The coefficient of correlation between X and Y.
iii) The variance of X.

2. a) Calculate 3 yearly moving average or trend value for the following data: 8

Year (x)	1953	1954	1955	1956	1957	1958	1959	1960
Values (y)	3	5	7	10	12	14	15	16

- b) Compute the 4-yearly moving averages from the following data: 8

Year	1991	1992	1993	1994	1995	1996	1997	1998
Annual Sales (Rs. 10 crores)	36	43	43	34	44	54	34	24

OR

- c) Below are given figures of production (In thousand Pound) of sugar factory. 16

Year	2017	2016	2017	2018	2019	2020	2021
Production (In thousand pound)	80	90	92	83	94	99	92

Find out:

- i) Is there rising trend or failing trend.
ii) Show the trend line
iii) Find out production for the year 2022 by at least method.

3. a) Calculate the value of X^2 and determine that intelligent fathers have intelligent sons.

Intelligent fathers with intelligent sons 372

Intelligent fathers with dull sons 122

Dull fathers with intelligent sons 138

Dull fathers with dull sons 868

($X^2=3.841$ for 5% at 1 d.f.)

- b) Suppose that in a public opinion survey answer to the question.

- a) Do you drink

- b) Are you in favour of local option or sale of liquor were tabulated as below

Question			
Question	Yes	No	Total
Yes	56	32	88
No	18	6	24
Total	74	38	112

Can you infer that opinion is dependent on whether or not an individual drinks? Table value of X^2 for one degree of freedom at 5% level of significance is 3.841.

OR

- c) Out of 8000 graduates in a town, 800 are females, out of 1600 graduates employed, 120 are female, Use χ^2 at 5% level of one degree of freedom is 3.841.

4. a) What is the chance that a year 1985 in the month of March should have 5th Sunday?

- b) A bag contains 4 white, 2 black, 3 yellow and 3 red balls. What is the probability of getting a white or red ball at random in a single draw of one.

OR

- c) A Cards is drawn from a pack of cards. Find the probability that it is.

- a) A black card

- b) A red card

- c) A club

- d) An ace

- e) A red ace

- f) An ace of spade

- g) Not a spade

- h) A king or a queen

- d) It is 8:5 against a person who is now 40 year old living till he is 70 and 4:3 against a person now 60 years living till he is 80. Find the probability that one at least of these person will be alive 30 year.

- 5. Write short note:**

- a) Utility of regression.

- b) Components of Time series.

- c) Characteristics of X^2 test.

- d) Theoretical distribution.
