

B.B.A. (CBCS Pattern) Semester - II
UCB2C07 - Statistical Methods For Business-II

P. Pages : 2

Time : Three Hours



GUG/S/23/10595

Max. Marks : 80

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

1. a) Define regression analysis. Explain the function of regression lines. 8

b) Given the following data for two tests. 8

$$\begin{array}{lcl} \frac{BE(x)}{\bar{x} = 75} & \frac{PM(y)}{\bar{y} = 70} & r = 0.72 \\ \frac{\hat{\sigma}_x = 6}{\hat{\sigma}_y = 8} & & \end{array}$$

Work out the probable marks in PM of two student whose BE marks are 10 and 100 and the probable marks in BE of another two students whose PM marks are 5 and 80.

OR

c) Given, 16

$$x - 4y = -3$$

$$-x + 9y = 13$$

Find out

- i) Mean value of x and y
ii) Coefficient of correlation

2. a) Take a five-yearly period of moving average from the following data. (Rs in 000's) 8

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Production	14	17	22	28	26	18	20	24	25	29	30	23

b) By applying least square method, find out the production for the month of November. In particular year & with a trend value. 8

Months	Jan.	Feb.	Mar.	April	May	Jun.	Jul.	Aug.
Production (In lakhs)	120	135	138	125	141	147	140	132

OR

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

Year	2013	2014	2015	2016	2017	2018	2019
Production (In thousand pound)	80	90	92	83	94	99	92

Find out

- i) Is there rising trend or falling trend.
ii) Show the trend line
iii) Find out production for the year 2020 by at least method.

3. a) 200 digits were selected at random from a set a table the frequencies of the digits were:- 8

Digits	0	1	2	3	4	5	6	7	8	9	Total
Frquency	18	19	23	21	16	25	22	20	21	15	200

Use χ^2 test to asses the correctness of hypothesis that the digit were distributed in equal number in that table from which these were chosen.

Table value of χ^2 for 9 degree of freedom at 5% level of significance is 16.919.

- b) Two treatment 'A' and 'B' were tried to control a certain type of plant disease. The following result 8
 were obtained.
 'A' = 200 plants were examined and 40 were found infected.
 'B' = 200 plants were examined and 10 were found infected.
 If treatment 'B' superior to treatment 'A' Table value of χ^2 for one degree of freedom at 5% level of significance is 3.841.

OR

- c) Out of a sample of 120 person in a village 76 person were administered a new drug for preventing 16
 Influenza and out of them 24 person were attacked by Influenza, out of those who were not,
 administered the new drug, 12 person were not attacked by influenza. Use the chi-square test for
 finding out whether the new drug is effective or not at the level of significant for one degree of
 freedom the table value of χ^2 is 3.841.
4. a) A problem in statistics is given to three students Nilesh, Rupali and Yognya. Whose chances of 8
 solving it are $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ what is the probability that the problem will be solved.
- b) Odds against a certain event are 5 to 3 and the odds in favour of another event independent of the 8
 farmer are 7 to 5. Find the chance that one at least of the event will happen.

OR

- c) From 30 ticket marked with the first 30 numerals are is drawn at random. Find the chance that – 8
 a) It is a multiple of 5 or 7
 b) It is a multiple of 3 or 7.
- d) A card is drawn at random from an ordinary pack of 52 playing cards. Find the probability that a 8
 card drawn is either a spade or Ace of diamond.
5. Write short answers.
- a) Explain the objectives of regression lines. 4
- b) Explain the components of time series. 4
- c) What are the uses of χ^2 test 4
- d) Explain the Poisson Distribution. 4
