

Goa Vidyaprasarak Mandal's GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS FARMGUDI – PONDA

M. COM. (SEMESTER – I) Examination, November 2014 C0102 - BUSINESS STATISTICS

Duration: 2 hours

Total Marks: 50

Instructions: 1) Answer all questions.

2) Each question carries 10 marks.

Q 1) Briefly answer the following:

 $(5 \times 2 = 10)$

a. Sources of primary data.

- b. Regression analysis and Correlation analysis.
- c. Components of Time series.
- d. Type I error and Type II error.
- e. Mathematical Expectation.

Q 2 X) A study of wheat prices at two cities yield the following data.

City A City B

Average Price ₹2.463 ₹ 2.797

Standard Deviation ₹0.326 ₹0.207

Coefficient of correlation r is 0.779. Estimate from the above data the most likely price of wheat

(i) at city A corresponding to the price of ₹2.334 at city B

(ii) at city B corresponding to the price of ₹3.052 at city A.

OR

Y) Fit straight line trend to the following data giving crude oil production, hence estimate the production for the year 2008.

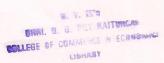
 Year
 :
 2000
 2001
 2002
 2003
 2004
 2005
 2006

 Production :
 10.5
 16.5
 21.1
 26.0
 29.0
 30.2
 30.5

 (in million tons)

Q3 X) a) Define i) Sample space

ii) Probability of an event.



b) The probability that a contractor will get a plumbing contract is 2/3, that he will not get an electric contract is 5/9. If the probability of getting at least one contract is 4/5, what is the probability that he will get both the contracts?

OR

- Y) A committee of four has to be formed from among 3 economists, 4 engineers, 2 statisticians and 1 doctor.
 - i) What is the probability that each of the four professions is represented on the committee?
 - ii) What is the probability that the committee consists of the doctor and at least one economist?
- Q 4 X) Distinguish between census and sample methods. Compare their relative merits and demerits.

OR

- Y) A random sample of 100 items taken from a large batch of articles contains 5 defective items,
 - (a) Set up 99% confidence limits for the proportion of defective items in the batch,
 - (b) If the batch contains 2696 items, set up 95% confidence interval for the proportion of defective items.
- Q 5 X) What is statistical quality control? Explain the uses of C- chart and P chart.

OR

Y) An inspection team has collected the following data during the quality exercise in a computer cabinet manufacturing unit.

Samples	Observed Dimensions (in cms)					
	1	2	3	4	5	6
1	3.56	3.49	3.48	3.51	3.50	3.53
2	3.50	3.50	3.52	3.53	3.49	3.47
3	3.49	3.54	3.55	3.54	3.49	3.48
4	3.55	3.52	3.52	3.50	3.51	3.52
5	3.49	3.48	3.49	3.49	3.53	3.54
6	3.48	3.47	3.53	3.54	3.55	3.53

Work out the control chart for the observations so obtained. Given that for n = 6, $d_1=2.53$, $d_2=0.848$, $D_3=0.066$, $D_4=2.004$