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DG-2762

Third Year B. Com. (Honours) (Sem. V) Examination

March / April – 2016

Advanced Business Statistics : Paper - V

Time : Hours] [Total Marks : **50**

Instructions : (1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ THIRD YEAR B. COM. (HONOURS) (SEM. V)

Name of the Subject :

☛ ADVANCED BUSINESS STATISTICS : PAPER - V

☛ Subject Code No. : 2 7 6 2 ☛ Section No. (1, 2,.....) : Nil

Seat No. :

Student's Signature

(2) All questions are compulsory.

(3) Figures to the right indicate full marks.

(4) Simple calculator can be used.

(5) Statistical tables and graph papers would be supplied on request.

1. (a) 100 units of a population are divided into four strata of sizes 15, 20, 30 and 35. The stratum means are 20, 25, 30, and 32 respectively. Find the population mean. 2

(b) From a population of observation 2, 4, 6,8,10. Take all possible samples of size 2 with replacement from the given population verify the following results. 6

(i) $E(\bar{y}) = \bar{Y}$

(ii) $V(\bar{y}) = \frac{\sigma^2}{}$

(c) Explain the difference between sample study and population study. 4

2. (a) The daily average wages of 225 workers was Rs. 75. Is the sample randomly drawn from a population with mean 80 Rs. and standard deviation 16.5 Rs? 3

(b) A computer manufacturing company finds 20 defective computers in a lot of 600 which are produced by one branch. After training the same branch finds 4 defective in batch of 150. Has the branch improved after training? 4

(c) (1) Explain: Null and Alternative hypothesis. 2

(2) A random sample of 1000 workers from West India shows that their mean wage is Rs. 500 per week with a standard deviation Rs. 28. Another sample of 1500 workers from South India shows that their mean wage is Rs.510 Rs. per week with a standard deviation Rs.40. Is there any significant difference between their mean wages? 4

3. (a) Two random samples each of size 100 are drawn from two large populations. 6
The information regarding these two samples is as follows.
Sample A : $\sum x = 2500, \sum x^2 = 67500$
Sample B : $\sum y = 2400, \sum y^2 = 72800$
From the above information can it be said that the variance of the first population is greater than that of the second?

(b) Explain the following terms: (i) Large sample 4
(ii) Level of significance
(iii) Confidence interval
(iv) Power of the test

(c) If n = 200 and average proportion defective is 0.05 then obtain the control limits for p-chart. 2

4. (a) Explain: (i) Control limits (ii) Specified limits (iii) Modified limits 6

(b) Ten samples each of size 5 are drawn from a production process, and following data were obtained. Draw $\bar{X}$ and R charts and report about the state of control. 7

Sample	1	2	3	4	5	6	7	8	9	10
Mean	9.33	9.22	9.18	9.22	9.07	9.22	9.24	9.13	9.03	9.20
Range	0.22	0.10	0.15	0.28	0.14	0.17	0.19	0.22	0.16	0.19

($A_2 = 0.577, D_3 = 0, D_4 = 2.114$)