



RAN-0350

T.Y.B.Com (Honours) Sem V Examination

March / April - 2019

Business Statistics Paper - V

સૂચના : / Instructions

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

Name of the Examination:

T.Y.B.Com (Honours) Sem V

Name of the Subject :

Business Statistics Paper - V

Subject Code No.:

0 3 5 0

Seat No.:

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Student's Signature

Instructions:

1. All the questions are compulsory.
2. Usual notations are used.
3. Figures to the right indicate full marks of the questions.
4. Statistical tables and graph papers would be given on request.
5. Simple calculators can be used.

- Q.1** a) State the advantages and disadvantages of stratified random sampling method. 4
- b) The observations of the population are 5, 6, 7 and 12. Take all possible samples of size 2 (two) without replacement from the population and verified the following results: 4
- (i) $E(\bar{y}) = \bar{Y}$ (ii) $V(\bar{y}) = \frac{\sigma^2}{n}$
- c) A population has two strata. In the first stratum there are three values 0, 1, 2 and in second stratum there are three values 4, 8, 12. From the population a random size of 4 (four) is taken, with 1 (one) unit from first stratum and 3 (three) units from second stratum. Then prove that for each stratum, the mean of the stratified sample mean is an unbiased estimator of the population mean. 5

- Q.2** a) Explain the testing about population mean for large sample. 3
- b) A sample of 1600 members is found to have a mean of height 34 inches. Can it be regarded as a simple random sample from a large population with mean height 32 inches and standard deviation 30 inches? 4
- c) From the following data test the significance of the difference between the standard deviation at 5% level of significance. 4

	x	y
mean	1260	1250
s.d.	34	28
n	40	60

- Q.3** a) Explain the testing about a population proportion. (For large sample). 3
- b) A random sample of 200 villages was taken from a district and average population per village was found to be 485 with a S.d. of 50. Another random sample of 200 villages from the same district gave average population of 510 per village with a S.d. of 40. Is the difference between two sample means significant? 4
- c) A coin is tossed 1000 times and it turns up head 521 times. Discuss whether the coin may be unbiased one. 4

- Q.4** a) What is np chart? Explain its construction. 5
- b) Draw \bar{x} chart for the following information. Also state your conclusion about the production process. Also obtain the value of expected standard deviation. 8

Mean :	23	23	22	23	22	20	20	24	25	23
Range :	8	3	4	8	4	2	4	7	2	4

(for $n=s$, $D_3 = 0$, $D_4 = 2.115$, $A_2 = 0.577$, $d_2 = 2.326$)

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