## UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019
Examination: B.S. 4 Years Program

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PAPER: Sampling Techniques (Theory)
Course Code: STAT-305 Part-I (Compulsory)

MAX. TIME: 15 Min. MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

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1.	A complete list of all the units in the popula		= 1
	A. Sampling unit C. Sampling frame	B. Population unit D. None of the above	
2.	When the sample survey becomes a census A. Zero	survey, the sampling error becomesB. One	
	C. Constant	D. None of the above	
3.	The Simple Random Sampling is aA. Probability Sampling	technique.  B. Non-Probability Sampling	
• , •	C. Both (A) & (B)	D. None of the above	
4.	Suppose we select every fourth invoice in a A. Simple Random	file. What type of sampling is this?  B. Cluster	
	C. Stratified	D. Systematic	
5.	Sampling in which sampling unit can be rep	peated more than once is called	
f - 7	A. Sampling with replacement C. Both (A) & (B)	B. Sampling without replacement D. None of the above	ent
6.	If a sample is drawn from each stratum mi it is known as:	nimizing the probabilities of non-preferred	l samples,
	<ul><li>A. Selection with proportional allocation</li><li>C. Haphazard selection</li></ul>	B. Controlled selection D. None of the above	
7.	In systematic sampling, if N is not an integr		
	A. Linear systematic sampling C. Centrally Located systematic sampling	B. Circular systematic sampling D. None of the above	
8.			will
	<ul><li>A. be negatively skewed</li><li>C. be positively skewed.</li></ul>	<ul><li>B. approach the normal distribution.</li><li>D. never approaches normal distribution</li></ul>	1.
9.	The stratification after the selection of samp		
	A. Two-way stratification C. Post stratification	B. Deep stratification D. None of the above	

## UNIVERSITY OF THE PUNJAB Fifth Semester – 2019 Examination: B.S. 4 Years Program

Roll No.

PAPER: Sampling Techniques (Theory)
Course Code: STAT-305 Part – II

MAX. TIME: 2 Hrs. 45 Min. MAX. MARKS: 50

## ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q. No. 2. Write a short note on the following:

(4x5=20)

- i. Determination of Sample Size
- ii. Two way Stratification
- iii. Linear Systematic Sampling
- iv. Proportional Allocation in Stratified Random Sampling
- Q. No. 3. Show that the variance of the estimate of population total  $\hat{y} = N\bar{y}$  from a. (07) simple random sample is  $V(\hat{y}) = N^2(1-f)\frac{s^2}{r}$ .
- Q. No. 4. If the loss function due to an error in  $\bar{y}$  is  $\lambda |\bar{y} \bar{Y}|$  and the cost function is  $C = C_0 + C_1 n$ , then show that the most economical value of 'n' in simple random sampling, ignoring finite population correction is  $(\frac{\lambda s}{c_1 \sqrt{2\pi}})^{2/3}$
- Q. No. 5. If the terms in  $\frac{1}{N_h}$  are ignored relative to unity, show that for estimated mean from stratified random sample of size  $n_h$ ,  $V_{opt} \leq V_{prop} \leq V_{ran}$  where the optimum allocation is for fixed 'n'.
- Q. No. 6. Show that the mean of a systematic sample is more precise than the mean of a simple random sample if and only if  $S_{wsv}^2 > S^2$  (07)