



SRM Institute of Science and Technology
Department of Mathematics
21MAB301T-Probability and Statistics
Tutorial Sheet - Large Sample - Proportions

S.No.	Questions
	Set – A
1	A coin is thrown 400 times and is found to result in head 245 times. Test whether the coin is a fair one.
2	A random sample of 400 mangoes was taken from a big consignment and 40 were found to be bad. Prove that the percentage of bad mangoes in the consignment will lie between 5.5 and 14.5?
3	1000 apples are taken from a large consignment and 100 are found to be bad. Estimate the percentage of bad apples in the consignment and assign the limits within which the percentage lies.
4	In two large populations, there are 30% and 25% respectively of fair-haired people. Is this difference likely to be hidden in sample of size 1200 and 900 respectively drawn from the two populations?
Set – B	
5	A random sample of 400 people was selected to know their individual views as to whether they prefer brand A detergent or brand B. Brand A was favoured by 180 housewives, while brand B was favoured by the rest. Do these data provide sufficient evidence to indicate a difference in preference for the two brands of detergents?
6	A cigarette manufacturing firm claims that its brand A of the cigarettes outsells its brand B by 8%. If it is found that 42 out of a sample of 200 smokers prefer brand A and 18 out of another random sample of 100 smokers prefer brand B. Test whether 5% difference is a valid claim.
7	A candidate for election made a speech in city A but not in B. A sample of 500 voters from city A showed that 59.6% of the voters were in favour of him, whereas a sample of 300 voters from city B showed that 50% of the voters favoured him. Discuss whether his speech could produce any effect on voters in city A. Use 5% level
8	In a large city, 16 out of a random sample of 500 men were found to be drinkers. After the heavy increase in tax on intoxicants another random sample of 100 men in the same city included 3 drinkers. Was the observed decrease in the proportion of drinkers significant after an increase in tax?