**CBCS/H/SEM 5/LARGE SAMPLE/ PS1 DATE**

**LARGE SAMPLE TESTS FOR BINOMIAL PROPORTION AND POISSON MEAN**

1. A coin is tossed 100 times and 60 heads are obtained. Test whether there is evidence to suggest that the coin is fair. If not then find a 95% confidence interval for the true proportion of heads.
2. To test whether more than 30% of U.S. households have internet access a sample of 150 households is collected to find that 57 of them have access. Do the data support the claim?
3. A university wants to determine whether a recently hired instructor is working out. 23 of 30 students of Instructor A passed a certain test in the first attempt whereas 57 of 72 students of another experienced Instructor B passed the same test in the first try. Is the success rate of A worse than that of B? Also find a 95 % confidence interval for the difference in success rates of A and B.
4. Prior to extensive modernization of its forecourt, the average number of vehicles calling in for fuel in a garage has been 5/ hr. Following the modernization, a total of 543 vehicles called in for fuel in a random sample of 100 I -hr intervals. Do the data support the fact that the modernization has led to an increase in the incoming vehicle rate? If yes, then find a 95% confidence interval for the difference in rates prior to and post modernization of the forecourt of the garage.
5. In a study relating to traffic conditions in a city, the average daily number of motor accidents during April 1998 were found to be

ZONE AVERAGE DAILY NO. OF ACCIDENTS

NORTH 17

SOUTH 10

Do the data indicate that the traffic problem is equally worse in the two zones?