**CBCS/H/SEM 5/LARGE SAMPLE/ PS2 DATE**

**LARGE SAMPLE TESTS FOR MEAN VARIANCE SKEWNESS AND KURTOSIS**

1. It is hoped that a newly developed pain reliever will more quickly produce perceptible reduction in pain to patients after minor surgeries than a standard pain reliever. The standard pain reliever is known to bring relief in an average of 3.5 minutes with standard deviation 2.1 minutes. To test whether the new pain reliever works more quickly than the standard one, 50 patients with minor surgeries were given the new pain reliever and their times to relief were recorded. The experiment yielded sample mean x¯=3.1 minutes and sample standard deviation s=1.5 minutes. Is there sufficient evidence in the sample to indicate, at the 5% level of significance, that the newly developed pain reliever does deliver perceptible relief more quickly?
2. A comparative study of variation in weights (in pound) of Army soldiers and Navy sailors was made. The sample variance of the weight of 120 soldiers was 60 and the sample variance of the weight of 160 sailors was 70 (in suitable units). Test whether the soldiers and sailors have equal variation in their weights. Use 5% level of significance.
3. For 600 beans of a particular variety the frequency distribution of breadth (in mm) has g1 = -0.128 and g2=0.195. Test whether the population distribution may be assumed to be Normal.