ASSIGNMENT

1. A company was planning to choose from three locations for its new office: A, B, & C. The probability that it would choose A was 0.50; B, 0.3; and C, 0.2. The company also knew that there was a 40 percent chance of benefitting from the introduction a new tax regime if it chose B, 55 percent if it chose A, and 45 percent if it chose C. If the company did eventually benefit from the introduction of a new tax regime, which location did it most likely choose?

2. The mean height of 200 candidates is 178 cm with a standard deviation of 2.2 cm. Find the probability that the mean of a sample of 40 candidates will be within ±6.6 cm of the population mean.

3. A boutique surveyed women of different occupations about what fashion style (A, B, C, D) they wore most often. The following data were collected:

Occupation	Style			
	A	B	C	D
Advertising	5	7	6	8
Secretary	10	15	12	8
Entrepreneur	8	12	21	25
Lawyer	12	14	20	25

At 0.10 level of significance, test whether the style a woman prefers depends on her occupation.

4. A hospital has collected the following data while examining past records from 210 randomly selected days from the past year to determine the frequency with which it treats fractures.

Fractures Treated in a Day	0	1	2	3	4	4+
No. of Days	25	55	65	35	20	10

At the 0.05 level of significance, can the hospital reasonably believe that the treatment of fracture cases follows a Poisson distribution with $\mu = 2$ fractures treated in a day?

5. a. A 95% confidence interval for a population mean was reported to be 152 to 160. If $\sigma = 15$, what sample size was used in this study?

   b. To estimate the mean age of a population of 4000 students, a simple random sample of 40 students is selected.

      i. Explain which formula (finite population or infinite population) should be used to calculate the standard error of the mean?

      ii. What is the probability that the sample mean age of the employees will be within ±2 years of the population mean age?