Assignment 3

Q.1 Workers' Distractions A recent study showed that the modern working person experiences an average of 2.1 hours per day of distractions (phone calls, e-mails, impromptu visits, etc.). A random sample of 50 workers for a large corporation found that these workers were distracted an average of 1.8 hours per day and the population standard deviation was 20 minutes. Estimate the true mean population distraction time with 90% confidence and compare your answer to the results of the study.

Q.2 Digital Camera Prices The prices (in dollars) for a particular model of digital camera with 6.0 megapixels and an optical 3X zoom lens are shown below for 10 online retailers. Estimate the true mean price for this particular model with 95% confidence.

225 240 215 206 211 210 193 250 225 202

Q.3 Professors' Salaries A researcher reports that the average salary of assistant professors is more than $42,000. A sample of 30 assistant professors has a mean salary of $43,260. At $\alpha = 0.05$, test the claim that assistant professors earn more than $42,000 per year. The standard deviation of the population is $5230.

Q.4 Revenue of Large Businesses A researcher estimates that the average revenue of the largest businesses in the United States is greater than $24 billion. A sample of 50 companies is selected, and the revenues (in billions of dollars) are shown. At $\alpha = 0.05$, is there enough evidence to support the researcher's claim? $\sigma = 28.7$. Use the *P*-value method.

1	78	122	91	44	35	61	56	46	20	32	30	28	28
	20	27	29	16	16	19	15	41	38	36	15	25	
31	30	19	19	19	24	16	15	15	19	25	25	18	14
	15	24	23	17	17	22	22	21	20	17	20		

Q.5 Doctor Visits A report by the Gallup Poll stated that on average a woman visits her physician 5.8 times a year. A researcher randomly selects 20 women and obtained these data.

3	2	1	3	7	2	9	4	6	6	8	0	5	6
	4	2	1	3	4	1							

At $\alpha = 0.05$ can it be concluded that the average is still 5.8 visits per year?

Q.6 two different materials An experiment was performed to compare the abrasive wear of two different laminated materials. Twelve pieces of material 1 were tested, by exposing each piece to a machine measuring wear. Ten pieces of material 2 were similarly tested. In each case the depth of wear was observed. The samples of material 1 gave an average coded wear of 85 units with a standard deviation of 4 while the samples of material 2 gave an average coded wear of 81 and a standard deviation of 5. Can we conclude at the 0.05 level of significance that the abrasive wear of material 1 exceeds that a material 2 by more than 2units? Assume the population to be approximately normal with equal variances.