2007 MEC603 SIX SIGMA – TEST I

Time: 60 minutes, Max marks:20

Use of approved Six Sigma Tables is permitted. Choose a significance level 0.05, where not mentioned.

1) Explain the breakthrough strategy used in Six Sigma.

(2 marks)

2) Make a small sketch showing the salient features of each of the Seven QC Tools (all in one page).

(3 marks)

3) Samples of plastic covers taken in 2006 and 2007 had the following thicknesses in microns. Make a comparative dot plot and give your conclusions.

2006	17.4	18.7	21.1	16.7	21.3	19.5	18.7	20.2	20.6	19.7
2007	23.5	22.2	21.9	19.1	21	19.7	20.9	20.4	20.4	

(3 marks)

4) The age at death of 50 people as reported in a newspaper are given below. Make a histogram and give your comments on the data. Estimate the probability that any person who had died was somebody who had retired from service, if the retirement age was 60.

78	54	74	57	80	74	85	65	79	72
72	84	84	85	90	87	65	89	37	16
22	37	67	73	93	63	38	85	75	70
90	35	78	82	85	84	85	70	59	73
91	87	65	75	72	75	79	43	77	75

(5 marks)

5) A shopkeeper assumes that the price of gold in the market is normally distributed with mean Rs840/- per gram and standard deviation Rs20/-. What is the highest possible price such that the probability of this price next day is maximum 90%?

(3 marks)

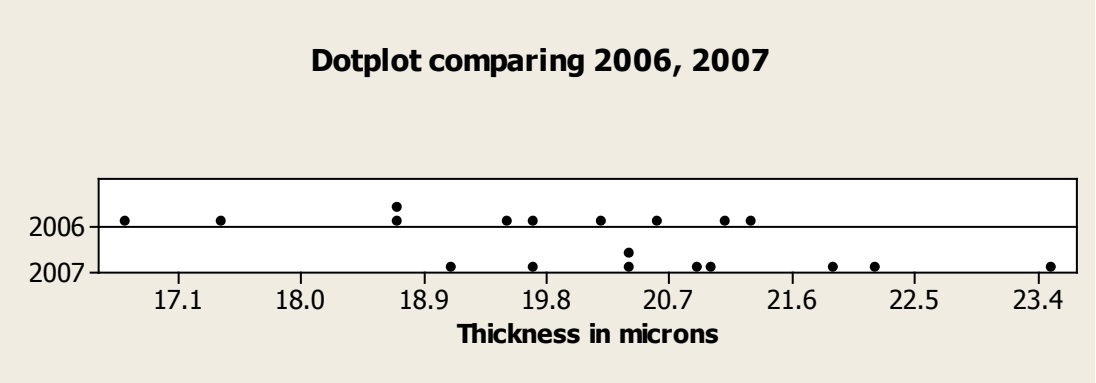
6) The percentage marks of two random sample of students at a college in two branches, viz Mechanical and Electrical are given below. Is there a significant difference between the two branches? Assume equal variances.

Mechanical	91	93	89	90	88	88	92	92	89	91
Electrical	89	90	93	87	91	89	86	89	88	

(5 marks)

SOLUTIONS TO NUMERICAL PROBLEMS:

3.



Thickness appears to have increased in 2007

4.

Distribution is not normal

P(Age>60)= 40/50 = 0.80

5.

P(Z>Zo)=0.9, Zo= 1.282

x = 840+20*1.282 = 865.6

6. $H_o : \mu_M = \mu_E$

$H_A : \mu_M \neq \mu_E$

	Mechanical	Electrical
Average	90.3000	89.1111
Var	3.1222	4.3611
Diff	1.1889	
Pooled Var	3.7052	
Sp	1.9249	
Sxbar	0.8844	
tO	1.3442	
tcrit	2.1098	

Hence there is no significant difference between the two branches