## 世新大學 94 學年度日間部三年級轉學生招生考試試題卷

第1頁共計2頁

系所別	考試科目
財務金融學系三年級(日部)	統計學

- ※ 考生請於答案卷內作答
- 注意:(1)請依題號順序填寫答案。

(2)答案卷上之答案請經四捨五入後列到小數第三位。

(1) Consider the sample of size 10 with data values of 13, 27, 25, 20, 14, 24, 29, 32, 34,16.

Compute the inter-quartile range.

(10%)

(2) A special industrial battery must have a life of at least 400 hours. A hypothesis test is to be conducted with a 5% level of significance. If the batteries from a particular production run have an actual mean use life of 395 hours, the product manager wants a sampling procedure that only 8% of the time would show erroneously that the batch is acceptable. What sample size is recommended for the hypothesis test when  $\sigma$  =25 hours.

(15%)

(3) They are two independent normal populations with population mean, μ<sub>1</sub>, μ<sub>2</sub>. We try to test H<sub>0</sub>: μ<sub>1</sub>=μ<sub>2</sub>, H<sub>a</sub>: μ<sub>1</sub> ≠ μ<sub>2</sub>, with α=5%. Suppose we have the following sample results x<sub>1</sub>=70.0, n<sub>1</sub>=10, x<sub>2</sub>=71.5, n<sub>2</sub>=8,

(a) Let 
$$o_1^2=0.9$$
 and  $o_2^2=0.8$ , what is your conclusion? (10%)

- (b) Suppose  $o_1^2 = o_2^2$ , and the respective sample variances being  $s_1^2 = 0.8$  and  $s_2^2 = 1.1$ , what is your conclusion? (10%)
- (4) Observations were selected from each of the three populations. The dada obtained are shown in the following calculations.

Sample1	Sample2	Sample3
61	81	62
49	92	60
58	67	52
56		

 $X_1=56, x_2=80, x_3=58; s_1^2=26, s_2^2=157, s_3^2=28$ 

Using analysis of variance, test for a significant difference among the means of the three populations,  $\alpha=1\%$ . (20%)

(5) The following estimated regression equation relating sales to inventory investment and advertising expenditures was given

$$\hat{Y}=25+10X_1+8X_2$$

(a) Please complete the following table:

		ANOVA		
Source	DF	SS	MS	F
Regression	1	12,000	4	6
Error	20	8,000	5	
Total	2	3		

S= (7) ;  $R^2 =$  (8) ;  $R_a^2(adj.R^2)$  (9)

Predictor	Coef.	St dev	t-ratio
Constant	10	4.0	(13)
X1	(1)	2.5	(14)
X2	(12)	3.0	(15)

- (b) Consider the testing hypothesis  $H_0:\beta_1=0$  and  $\beta_2=0$  verse  $H_a:\beta_1\neq 0$ , or  $\beta_2\neq 0$ , using  $\alpha=1\%$ .
- (c) Consider the testing hypothesis  $H_0:\beta_1=0$  verse  $H_a:\beta_1\neq 0$ , using  $\alpha=5\%$ .