Stat 2300 International, Fall 2006 – Sample Final Answers

1. d. greater than Z_α

2. a. .008

3. c. $\mu_{consumer} - \mu_{banking.} > 0$.

4. a. Z statistic

5. b. t statistic.

6. d. interaction between factors 1 and 2.

7. a. treatments.

8. d. variance of one.

9. a. Simple correlation coefficient

10. c. the overall F test

11. $H_0\ \mu = 60$ $H_a\ \mu \neq 60$

12. $z = (55\text{-}60) / (5/\sqrt{35}) = -5.916$

13. about 2.575, based on the normal (z) distribution (as n is at least 29)

14. $\bar{x} \pm z_{\alpha/2} * \frac{s}{\sqrt{n}} = 55 +/- 2.33 * 5/\sqrt{35} = [53.03, 56.97]$

15. Intercept (b_0) = 14.8156152986465; Slope (b_1) = 5.70656898050416

16. $\hat{y} = b_0 + b_1 * x = 14.8156152986465 + 5.70656898050416 * 3.25 = 33.36196$

17. SSE = 1.4381994287843; s^2 = SSE / (n-2) = 1.4381994287843 / 5 = 0.28764;
$s = \sqrt{s^2} = 0.536321$

18. $s_{b_1} = 0.395307207656232$; $t = 14.4357827785086$; this is calculated as:
$t = \frac{b_1}{s_{b_1}} = 5.70656898050416 / .395307207656232 = 14.43578$

19. From Excel output: *p*-value = 0.0000287758816813678 = 2.878E-05; reject the null hypothesis for all given values of alpha; there is an extremely strong evidence of a significant relationship between GPA and starting salary

20. From Excel output: [4.69039945337804; 6.72273850763028]