Exam I Solutions

Part 1: Multiple Choice

Total Points: 66 (3 points per question)

TEST A	TEST B
1. C	1. E
2. A	2. A
3. B	3. D
4. A	4. D
5. B	5. B
6. A	6. C
7. E	7. C
8. C	8. D
9. D	9. B
10. B	10. A
11. D	11. B
12. C	12. A
13. D	13. B
14. E	14. B
15. A	15. C
16. D	16. C
17. B	17. B
18. C	18. B
19. C	19. A
20. B	20. E
21. B	21. C
22. B	22. D

Part 2: Written Section

Total Points: 34

Tattoo Problem (7 points per section)

(A) $T \sim Binomial(n = 10, p = .15)$

(B) $P(T \le 2) = P(T = 0) + P(T = 1) + P(T = 2) = .1969 + .3474 + .2759 = .8202$

(C) $NT \sim Binomial(n = 10, p = .85)$ P(NT > 5) = P(NT = 6) + P(NT = 7) + P(NT = 8) + P(NT = 9) + P(NT = 10) = P(T < 5) = P(T = 4) + P(T = 3) + P(T = 2) + P(T = 1) + P(T = 0) = .0401 + .1298 + .2759 + .3474 + .1969 = .9901OR $= 1 - P(T \ge 5) = 1 - [P(T = 5) + P(T = 6) + P(T = 7) + P(T = 8) + P(T = 9) + P(T = 10)]$ = 1 - [.0085 + .0012 + .0001 + 0 + 0 + 0] = .9902

Study Design Problem (varied points per section)

(A) This is an observational study. (3 points)

(B) The response variable is the price of a one-minute commercial during the earlyevening local news broadcast. (3 points)

(C) Location: 4 levels = West Coast, Midwest, Northeast, Southeast Affiliation: 3 levels = ABC, NBC, CBS(4 points)

(D) There are $(4 \times 3 =) 12$ treatment combinations. (3 points)