

习题六

$$1. (1) \hat{\theta} = \frac{3 - \bar{x}}{4} = 0.25. \quad (2) \hat{\theta} = \frac{7 - \sqrt{13}}{12}.$$

2. $\hat{\lambda} = \bar{x} = 1$, 即平均 1 升水中含有 1 个大肠杆菌使上述结果的概率最大.

$$3. (1) \hat{\theta} = \frac{2N_1 + N_2}{2n}; \quad (2) \hat{\theta} = \frac{20 + 53}{218} = 0.335.$$

$$4. \hat{N} = \frac{\bar{X}}{\bar{\kappa}}, \quad \hat{p} = 1 - \frac{S_n^2}{\bar{X}}.$$

$$5. (1) \hat{p} = \frac{1}{\bar{X}}, \quad (2) \hat{p} = \frac{1}{\bar{X}}.$$

$$6. \hat{\theta} = \frac{N}{n}. \quad 7. \text{是}. \quad 8. \text{略} \quad 9. \hat{\lambda}^2 = \bar{X}^2 - \frac{\bar{X}}{n}.$$

$$10. (1) C = \frac{1}{2(n-1)}; \quad (2) C = \frac{1}{n}. \quad 11. \text{略} \quad 12. a = \frac{n_1 - 1}{n_1 + n_2 - 1}, \quad b = \frac{n_2 - 1}{n_1 + n_2 - 1}.$$

$$13. (1) \frac{T_1}{\sigma^2} \sim \chi^2(m+n-2), \quad \frac{T_2}{\sigma^2} \sim \chi^2(m+n);$$

$$(2) C_1 = \frac{1}{m+n-2}, \quad C_2 = \frac{1}{m+n}; \quad (3) T_2^* \text{ 较优}.$$

$$14. (1) \chi^2(2n-1); \quad (2) \left(\frac{T}{\chi_{\frac{\alpha}{2}}^2(2n-1)}, \frac{T}{\chi_{1-\frac{\alpha}{2}}^2(2n-1)} \right).$$

$$15. n \geq \frac{4\sigma_0^2}{L^2} z_{\frac{\alpha}{2}}^2. \quad 16. 0.9.$$

$$17. (1) E(X) = e^{\mu + \frac{1}{2}}; \quad (2) (-0.975, 0.975); \quad (3) (e^{-0.475}, e^{1.475}).$$

$$18. (0.3000, 2.1137).$$

$$19. (3.2033, 3.6968) \text{ (提示: 先求出 } \mu \text{ 置信上下限)}.$$

$$20. (1) (2.106, 2.140); \quad (2) (0.357, 8.223).$$

$$21. (750.5, 849.5). \quad 22. (170.44, 173.57). \quad 23. (1084.74, 1209.26).$$

$$24. (30.868, 31.252). \quad 25. (92260, 107740).$$

$$26. (1) (66.2, 73.4); \quad (2) (5.0, 10.4). \quad 27. (-6.04, -5.96).$$

$$28. (-12.96, 2.96). \quad 29. (-0.002, 0.006). \quad 30. \bar{\mu} = 40527.$$

$$31. \bar{\mu} = 409.88 \text{ kg/cm}^2, \quad \bar{\mu} = 420.12. \quad 32. (3.56, 4.49).$$