

习题五

$$1. (1) P\{X_1 = x_1, X_2 = x_2, \dots, X_n = x_n\} = \frac{\lambda^{\sum_{i=1}^n x_i}}{x_1! x_2! \dots x_n!} e^{-n\lambda};$$

$$(2) P\{X_1 = x_1, X_2 = x_2, \dots, X_n = x_n\} = p^{\sum_{i=1}^n x_i} (1-p)^{n^2 - \sum_{i=1}^n x_i} \prod_{i=1}^n C_n^{x_i}.$$

$$2. \chi^2(1). \quad 3. t(n-1). \quad 4. t(m+n-2). \quad 5. 0.7. \quad 6. 0.9755. \quad 7. F(5, n-5).$$

$$8. 35. \quad 9. (1)40, (2)1537.$$

$$10. (1)0.94, (2)0.895. \quad 11. 0.8293. \quad 12. 0.1336.$$

$$13. 0.8104. \quad 14. 0.66. \quad 15. (1)0.2628; (2)0.5785, 0.2923.$$

$$16. 2(n-1)\sigma^2. \quad 17. (1)0.01; (2) \frac{2\sigma^4}{n-1}.$$

$$18. (1) f_Y(y) = f\left(\frac{y}{2\lambda}\right) \frac{1}{2\lambda} = \begin{cases} \frac{1}{2} e^{-\frac{y}{2}}; & y > 0 \\ 0, & y \leq 0 \end{cases}; (2) 2n\lambda \bar{X} \sim \chi^2(2n). \quad 19. \frac{2}{n(n-1)}.$$