Part IB — Statistics Example Sheet 1

Supervised by ???

Examples worked through by Christopher Turnbull

Lent 2018

QUESTION 1

QUESTION 2

QUESTION 3

QUESTION 4

(a) Let $X_1, \cdots, X_n$ be independent $\text{Po}(i\theta)$. So

$$f_{\mathbf{X}}(\mathbf{x} \mid i\theta) = \prod_{i=1}^{n} \frac{e^{-i\theta}(i\theta)^{x_i}}{x_i!}$$
$$=$$

QUESTION 5

(a) Let $X_1, \cdots, X_n$ be $\sim$ iid $\mathrm{Bin}(1, p)$. (this is $\mathrm{Ber}(p)$)

$$f_{\mathbf{X}}(\mathbf{x} \mid p) = \prod_{i=1}^{n} p^{x_i}(1-p)^{1-x_i}$$
$$= p^{\sum x_i}(1-p)^{n-\sum x_i}$$

QUESTION 6

QUESTION 7

QUESTION 8

QUESTION 9

QUESTION 10

QUESTION 11

QUESTION 12