1. A

$$\frac{\partial l}{\partial \beta_j} = \sum_i (\omega_i - y_i) x_{ij} = \sum g_i$$

B

$$E(ng_i) = nE(g_i) = n \sum_k P(g_i = k)k = n \sum_i \frac{g_i}{n} = \frac{\partial l}{\partial \beta_j}$$