Q5a: We compute $d\omega$ as follows:

$$\begin{aligned}
d\omega &= \sum_{i=1}^{n} dx_i \wedge \frac{\partial \omega}{\partial x_i} \\
&= \sum_{i=1}^{n} dx_i \wedge \frac{\partial}{\partial x_i} \sum_{j=1}^{n} (-1)^{j-1} \frac{x_j}{|x|^p} dx_1 \wedge \cdots \widehat{dx_j} \cdots \wedge dx_n \\
&= \sum_{i=1}^{n} dx_i \wedge \frac{\partial}{\partial x_i} (-1)^{i-1} \frac{x_i}{|x|^p} dx_1 \wedge \cdots \widehat{dx_j} \cdots \wedge dx_n \\
&= \sum_{i=1}^{n} dx_i \wedge (-1)^{i-1} \frac{|x|^p - p x_i^2 |x|^{p-2}}{|x|^{2p}} dx_1 \wedge \cdots \widehat{dx_j} \cdots \wedge dx_n \\
&= \frac{1}{|x|^{2p}} (\sum_{i=1}^{n} |x|^p - p|x|^{p-2} \sum_{i=1}^{n} x_i^2) dx_1 \wedge \ldots dx_n \\
&= \frac{1}{|x|^{2p}} (n|x|^p - p|x|^{p-2} \cdot |x|^2) dx_1 \wedge \cdots \wedge dx_n \\
&= \frac{n|x|^p - p|x|^p}{|x|^{2p}} dx_1 \wedge \cdots \wedge dx_n
\end{aligned}$$

Q5b: We see by taking $p = n$, $d\omega = 0$