〔Solution〕

$$\begin{aligned}
s^{n+1} &\geqq s^{n-1}a_1{}^2+s^{n-1}(a_2+a_3+\cdots\cdots+a_n)^2\\
&\geqq s^{n-1}a_1{}^2+s^{n-2}a_2{}^3+s^{n-2}(a_3+\cdots\cdots+a_n)^3\\
&\quad\vdots\\
&\geqq s^{n-1}a_1{}^2+s^{n-2}a_2{}^3+s^{n-3}a_3{}^4+\cdots\cdots+a_n{}^{n+1}\\
&\geqq a_1{}^2+a_2{}^3+a_3{}^4+\cdots\cdots+a_n{}^{n+1}
\end{aligned}$$

であるから，最大値はs^{n+1}で，そのとき，

$$(a_1,\ a_2,\ \cdots\cdots,\ a_{n-1},\ a_n)=(0,\ 0,\ \cdots\cdots,\ 0,\ s)$$

に限る．

また，$f(x)=\sum_{k=1}^{n}\left(\dfrac{x}{k+1}\right)^{\frac{1}{k}}$ $(x\geqq 0)$は単調増加なので，$f(\alpha)=s$である正の実数αが唯一つ存在する．このとき，

$$\begin{aligned}
\sum_{k=1}^{n}a_k{}^{k+1}&=\sum_{k=1}^{n}\left\{a_k{}^{k+1}+k\left(\frac{\alpha}{k+1}\right)^{\frac{k+1}{k}}\right\}-\sum_{k=1}^{n}k\left(\frac{\alpha}{k+1}\right)^{\frac{k+1}{k}}\\
&\geqq\sum_{k=1}^{n}(k+1)\sqrt[k+1]{a_k{}^{k+1}\left\{\left(\frac{\alpha}{k+1}\right)^{\frac{k+1}{k}}\right\}^k}-\sum_{k=1}^{n}k\left(\frac{\alpha}{k+1}\right)^{\frac{k+1}{k}}\quad\text{（相加平均・相乗平均の不等式より）}\\
&=(a_1+a_2+\cdots\cdots+a_n)\alpha-\sum_{k=1}^{n}k\left(\frac{\alpha}{k+1}\right)^{\frac{k+1}{k}}\\
&=s\alpha-\sum_{k=1}^{n}k\left(\frac{\alpha}{k+1}\right)^{\frac{k+1}{k}}
\end{aligned}$$

であるから，最小値は$s\alpha-\sum_{k=1}^{n}k\left(\dfrac{\alpha}{k+1}\right)^{\frac{k+1}{k}}$で，そのとき

$$a_k=\left(\frac{\alpha}{k+1}\right)^{\frac{1}{k}}\quad(k=1,\ 2,\ \cdots\cdots,\ n)$$

に限る．■