3   The power output P of a star can be modelled with the equation

$$P = \sigma A T^4$$

where σ is a constant, A is the surface area of the star and T is the surface temperature of the star.

What are the SI base units of σ?

A $kg\,s^{-2}\,K^{-4}$

B $kg\,s^{-3}\,K^{-4}$

C $kg\,m^{-1}\,s^{-2}\,K^{-4}$

D $kg\,m^{-1}\,s^{-3}\,K^{-4}$