Answer - 7 ⇒

given, Mass explodes and changes to black hole.

Let Radius of black hole = R

Radius of Mars = R_m

given, $R = 10^5 \times R_m$

Using Bekenstein - Hawking relation,

Entropy generated = S, is

$$S = \frac{\text{Area of black hole}}{(\text{Plank's length})^2} \times a \qquad 0 < a < 1$$

now, plank's length = $P_L = 10^{-35}$ m

Area of black hole = $4\pi R^2 = 4\pi (10^5 R_m)^2$

now, $S = \frac{4\pi \times 10^{10} \times R_m^2}{(10^{-35})^2} \times a = a \times 4\pi R_m^2 \times 10^{80}$ J/K

assuming $a = 1$, take $R_m = 3.3895 \times 10^6$ m

we get $S = 1.444 \times 10^{94}$ J/K

S, is entropy generated by black hole.