

- 1 (a) (i) Define *power*.

.....
[1]

- (ii) Show that the SI base units of power are $\text{kg m}^2 \text{s}^{-3}$.

[1]

- (b) All bodies radiate energy. The power P radiated by a body is given by

$$P = kAT^4$$

where T is the thermodynamic temperature of the body,
 A is the surface area of the body
 and k is a constant.

- (i) Determine the SI base units of k .

base units[2]

- (ii) On Fig. 1.1, sketch the variation with T^2 of P . The quantity A remains constant.

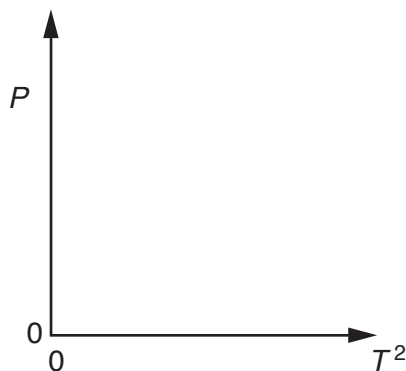


Fig. 1.1

[1]

[Total: 5]