

- (b) Figure 5.1 shows a satellite with three solar panels folded in close to the satellite's axis for the journey into space in the hold of the cargo spacecraft.

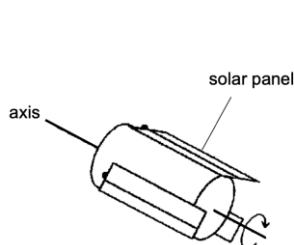


Figure 5.1

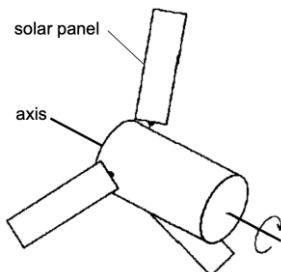


Figure 5.2

Just before it is released into space, the satellite is spun to rotate at  $5.2 \text{ rad s}^{-1}$ . Once released, the solar panels are extended as shown in Figure 5.2.

moment of inertia of the satellite about its axis with panels folded =  $110 \text{ kg m}^2$   
moment of inertia of the satellite about its axis with panels extended =  $230 \text{ kg m}^2$

Calculate the decrease in rotational kinetic energy after the solar panels have been extended. [3 marks]