**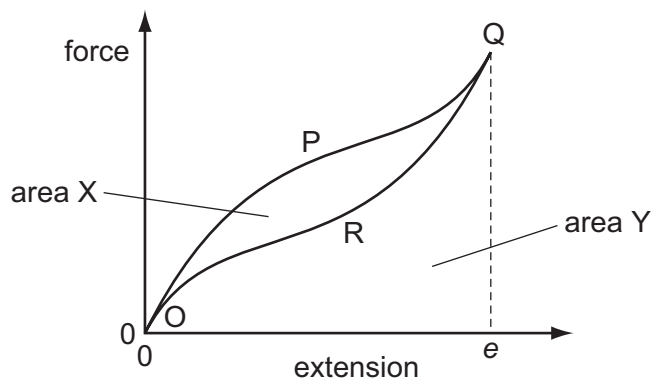24** A rubber band is stretched and then relaxed to its original length. The diagram shows the force-extension graph for this process.



As the force is increased, the curve follows the path OPQ to extension $e$. As the force is reduced, the curve follows the path QRO to return to zero extension.

The area labelled X is between the curves OPQ and QRO. The area labelled Y is bounded by the curve QRO and the horizontal axis.

Which statement about the process is correct?

**A**    Area X is the energy which heats the band as it is stretched to $e$.

**B**    (Area X + area Y) is the minimum energy required to stretch the band to $e$.

**C**    Area X is the elastic potential energy stored in the band when it is stretched to $e$.

**D**    (Area Y – area X) is the net work done on the band during the process.

**Space for working**