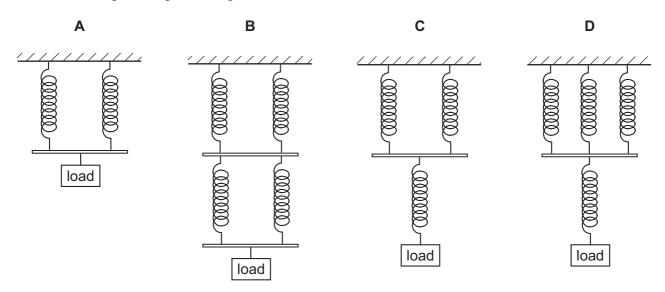
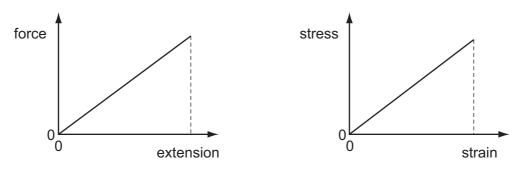
21 A number of similar springs, each having the same spring constant, are joined in four arrangements. The same load is applied to each.

Which arrangement gives the greatest extension?



22 The graphs show how force varies with extension and stress varies with strain for the loading of a metal wire.



The Young modulus for this wire is equal to

- **A** the gradient of the force-extension graph.
- **B** the area between the force-extension graph and the extension axis.
- **C** the gradient of the stress-strain graph.
- **D** the area between the stress-strain graph and the strain axis.
- **23** For a wire, Hooke's law is obeyed for a tension *F* and extension *x*. The Young modulus for the material of the wire is *E*.

Which expression represents the elastic strain energy stored in the wire?

- **A**  $\frac{1}{2} Ex$
- B Ex
- $\mathbf{C} \quad \frac{1}{2} \, F x$
- $\mathbf{D}$   $\mathbf{F}\mathbf{x}$