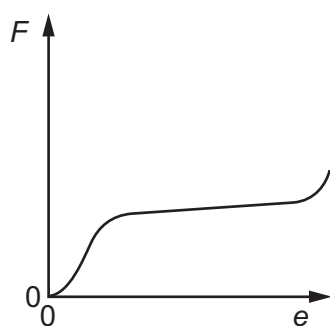
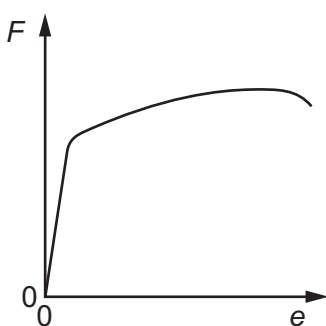


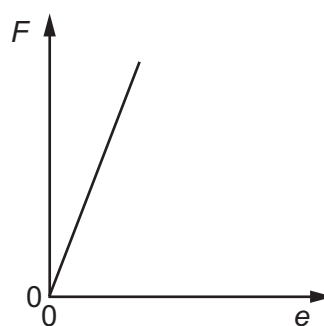
- 21 Cylindrical samples of steel, glass and rubber are each subjected to a gradually increasing tensile force F . The extensions e are measured and graphs are plotted as shown below.



graph X



graph Y



graph Z

Which row correctly relates the graphs to the materials?

	steel	glass	rubber
A	X	Y	Z
B	X	Z	Y
C	Y	X	Z
D	Y	Z	X

- 22 Two steel wires P and Q have lengths l and $2l$ respectively, and cross-sectional areas A and $\frac{A}{2}$ respectively. Both wires obey Hooke's law.

What is the ratio $\frac{\text{tension in P}}{\text{tension in Q}}$ when both wires are stretched to the same extension?

- A** $\frac{1}{4}$ **B** $\frac{1}{2}$ **C** $\frac{2}{1}$ **D** $\frac{4}{1}$

- 23 What do **not** travel at the speed of light in a vacuum?

- A** electrons
B microwaves
C radio waves
D X-rays

- 24 The number of wavelengths of visible light in one metre is of the order of

- A** 10^4 . **B** 10^6 . **C** 10^8 . **D** 10^{10} .