

- 18** A submarine carries a pressure meter so that the crew can work out how far they are below the surface of the sea. At the surface, the meter indicates a pressure of 100 kPa. The density of seawater is  $1030 \text{ kg m}^{-3}$ .

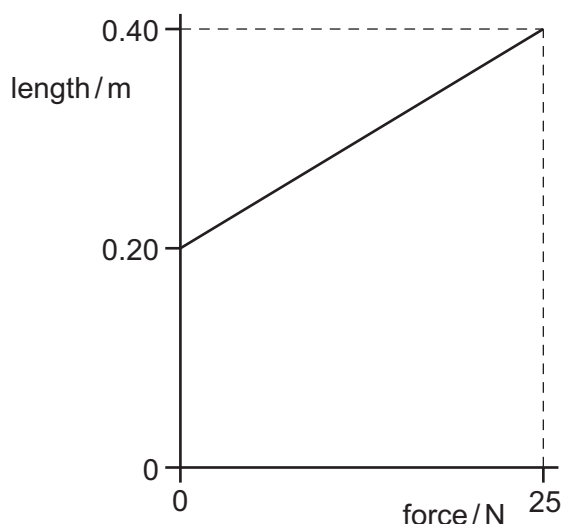
What is the depth below the surface when the meter reads 450 kPa?

- A** 34.6 m      **B** 44.5 m      **C** 340 m      **D** 437 m

- 19** What is plastic deformation?

- A** Plastic deformation occurs when strain is not proportional to stress but when the load is removed the material returns to its original length.
- B** Plastic deformation occurs if, when the load is removed, the material contracts but a permanent stretching has occurred.
- C** Plastic deformation occurs until the extension is no longer proportional to the load.
- D** Plastic deformation occurs when the material extends so that strain is directly proportional to stress.

- 20** The graph shows how the length of a particular rubber cord varies as force is applied.



What is the maximum strain energy in this deformed rubber cord?

- A** 2.5 J      **B** 5.0 J      **C** 7.5 J      **D** 10 J

- 21** What is the relationship between the intensity  $I$  and the amplitude  $a$  of a wave?

- A**  $\frac{I}{a} = \text{constant}$
- B**  $\frac{I}{a^2} = \text{constant}$
- C**  $I a = \text{constant}$
- D**  $I a^2 = \text{constant}$