Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

Question	Answer	Additional guidance	Mark
(i)	a description including: pressure increases as height decreases (1) OR as height increases pressure decreases (1) non-linear (1)	negative correlation implication of non-linear e.g. curved OR not proportional OR gradient increases as height increases OR gradient decreases as pressure increases	(2) AO3.2

Question	Answer	Additional guidance	Mark
(ii)	accept any answer from 30 to 34 (kPa) (1)		(1) A03.2

Question	Answer	Additional guidance	Mark
(iii)	substitute into % calculation (1) $\frac{74 - 104}{104}$ (x 100) evaluation (1) (-) 29 (%)	$\frac{104 - 74}{104}$ (x 100) any number rounding to (-)29(%) e.g. (-)28.8(%) award full marks for the correct answer without working award 1 mark for (-)0.29 OR (-)0.288	**(2)** **AO2.1**
		award 1 mark for (-)40(.54) (%) or (-)41 (%) award 1 mark for 71 (%)	

Q2.

Question number	Answer	Additional guidance	Mark
(i)	increase in height results in decrease in pressure (1)	pressure decreases with height accept inversely proportional in this context accept negative correlation	**(3)** **AO3**
	non-linear relationship (1)	double the height does not result in half the pressure pressure not does change evenly description of graph e.g. curved / not straight	
	use of numerical data (1) at least two different pressure and height values from the graph	calculation of change in pressure e.g. 5000m to 10000 m pressure went down by 22	

Question number	Answer	Additional guidance	Mark
(ii)	any **one** from air becomes less dense (1) smaller weight (of air) above (1) lower temperature (1)	accept oxygen / atmosphere for air air gets thinner / (air) particles further apart / fewer particles / less particles less air above / smaller height of air above ignore change in value of g with height	**(1)** **AO1**

Q3.

Question number	Answer	Additional guidance	Mark
	An answer that combines points of interpretation/evaluation to provide a logical description: • above 37.5 N/4 mm there are large increases of extension for small increases in load (1) • the maximum extension of the wire is about 16.5 mm before it breaks (1) • above 12 mm the wire keeps on extending when the load is reduced below 46 N (1)	accept extension is (much) greater for each 1 N increase in load above 37.5 N	**(3)**

Q4.

Question number	Answer	Additional guidance	Mark
	an explanation linking the area (of contact between person and bed) is smaller when standing up (1) same weight (over smaller area) so the pressure is greater when standing up (1)	accept reverse arguments weight is more concentrated / not distributed /not spread across bed (when standing up) uses p = F/A argument (as a consequence of the smaller area, pressure is bigger)	**(2)** **AO2**

Q5.

Question	Answer	Additional guidance	Mark
		ignore gravity accept reverse arguments	**(2)** **AO3.2**
	an explanation linking: density decreases as height increases (1) with (because) particles are further apart (higher up) (1)	density decreases as you go higher accept fewer particles per unit volume accept particles more spaced out	

Q6.

Question number	Answer	Mark
	An explanation that combines identification – application of knowledge (1 mark) and reasoning/justification – application of understanding (3 marks): • the gas cylinders have the same weight (1) • but cylinder A has the smallest area (that is in contact with the ground) (1) • the smaller the area, the greater the pressure (or reference to $P = \frac{F}{a}$) (1) • hence cylinder A exerts a greater pressure on the ground (1)	**(4)**