

Name of the Student: _____

Max. Marks : 19 Marks

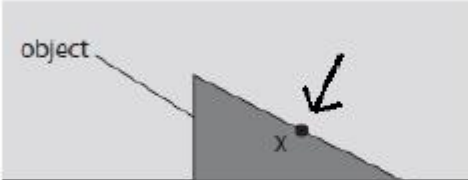
Time : 19 Minutes

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
i	recall (1) $p = \frac{F}{A}$ substitution (1) $(p) = \frac{2400}{0.8}$ evaluation $(p) = 3000 \text{ (Pa)}$ (1)	may be implied by a correct substitution award full marks for the correct answer without working	(3) AO2

Question number	Answer	Additional guidance	Mark
ii	an explanation linking greater pressure (on bottom of tank) (1) with greater force due to water (above bottom of tank) (1)	more weight of water more depth/height of water ignore simply 'more water' or 'greater amount of water'	(2) AO1

Question number	Answer	Additional guidance	Mark
iii	 an arrow perpendicular to the sloping side and pointing towards X	judge by eye	(1) AO1

Q2.

Question number	Answer	Additional guidance	Mark
(i)	substitution (1) (pressure =) $\frac{2500}{4 \times 0.022}$ evaluation (1) 28 000 (Pa)	any number rounding to 28 000 e.g. 28 400, 28 410, 28 409 award full marks for the correct answer without working award one mark for numbers that round to 110 000 (Pa) (missing 4 in denominator) award 1 mark for 454 545 (times by 4)	(2) A02

Question number	Answer	Additional guidance	Mark
(ii)	An explanation linking any two from camel less likely to sink into the soft ground (1) (same) force / weight is distributed / spread out (1) camel's hoof has greater (surface) area (than donkey) (1) camel's hoof exerts less pressure (than it would if hoof were smaller) (1)	ORA for donkey ignore pressure is spread out wider if no other marks scored then allow 1 mark for split in camel hoof enables better grip (as it walks)	(2) A03

Q3.

Question	Answer	Additional guidance	Mark
	substitution (1) $(\text{force} =) 4.8 \times 10^7 \times 1.2 \times 10^{-5}$ evaluation (1) 576 (N) their evaluation rounded to 2sf (1) 580 (N)	award full marks for the correct answer (580) without working award 1 mark for 5.76 to any other power of ten award 2 marks for 5.8 to any other power of ten	(3) AO2.1

Q4.

Question number	Answer	Additional guidance	Mark
	recall equation (1) pressure = $\frac{\text{force}}{\text{area}}$ substitution (1) (pressure =) $\frac{28}{2}$ evaluation (1) 14 (N/cm²)	accept $P = \frac{F}{A}$ ignore powers of ten errors for attempted unit conversions award full marks for the correct answer without working if no other marks scored then allow 1 mark for either $\frac{2}{28}$ or 0.07	(3)

Q5.

Question Number	Answer	Additional guidance	Mark
	(area) = 6.0×2.0 $= 12$ (1) substitution (1) $(P =) \frac{15\,000}{(12)}$ evaluation (1) $1300(\text{Pa})$	award one mark for 6.0×2.0 seen with no alternative area calculation Accept $15000/(\text{any value})$ for this mark. accept $1250 (\text{Pa})$ award full marks for the correct answer without working	(3)