A-Level Physics: **w25 11**

Multiple Choice Answers

Q8: C

A-Level Physics: **w25 12**

Multiple Choice Answers

Q11: A

A-Level Physics: **w25 21**

2(a)(i)	(normal) force per (unit cross-sectional) area
2(a)(ii)	(due to difference in depth there is a) difference in pressure between top and bottom (of ball)
	(due to pressure difference, upwards) force on bottom of ball is greater (than downwards force on top of ball, so resultant force is upwards)
2(b)(i)	arrow vertically downwards labelled 'weight'
	arrow vertically upwards labelled 'upthrust'
	arrow vertically upwards labelled '(viscous) drag'
2(b)(ii)	SI base units of D: kg m s^{-2}
	base units of η: kg m s^{-2} / (m × m s^{-1}) = kg m^{-1} s^{-1}
2(c)(i)	upthrust = 920 × (4 / 3) × π × (4.2 × 10^{-3})^3 × 9.81 = 2.8 × 10^{-3} (N)
2(c)(ii)	weight = drag + upthrust
	(2.4 × 10^{-3} × 9.81) = (2.8 × 10^{-3}) + (6π × 4.7 × 4.2 × 10^{-3} × v)
	v = 0.056 m s^{-1}

A-Level Physics: **s25 11**

Multiple Choice Answers

Q20: B

A-Level Physics: **s25 12**

Multiple Choice Answers

Q12: D

A-Level Physics: **s25 13**

Multiple Choice Answers

Q8: B

A-Level Physics: **s25 14**

Multiple Choice Answers

Q8: B

A-Level Physics: **s25 23**

3(a)	$W = Fd$
	$P = Fd / t = Fv$ **or** $P = Fvt / t = Fv$
3(b)(i)	$(\Delta)E_{(P)} = mg(\Delta)h$
	increase of gravitational potential energy of car in 1.0 s = 1500 × 9.81 × 30 × sin6.0 = 46 000 J
3(b)(ii)	(Power to overcome total resistive forces) = 1600 × 30 = 48 000 W
	power = 48 000 + 46 000 = 9.4 × 10^4 W
3(c)(i)	Air resistance is the same, as the speed is the same
3(c)(ii)	Mass / weight has increased so (power will) increase