Question Number	Answer	Mark
1	**D is the correct answer** A is not the correct answer as work done is a scalar quantity B is not the correct answer as time is a scalar quantity C is not the correct answer as temperature is a scalar quantity	**(1)**
2	**C is the correct answer as 1 kWh = 1000 W × 3600 s = 3.6× 10^6 J** A is not the correct answer as 0.28 J= $\frac{1000\ \text{W}}{3600\ \text{J}}$ B is not the correct answer as 0.28 W= $\frac{1000\ \text{W}}{3600\ \text{J}}$ and the unit should be J and not W D is not the correct answer as the unit should be J and not W.	**(1)**
3	**D is the correct answer** A is not the correct answer as Stokes' Law does not apply to large spheres moving quickly through a fluid B is not the correct answer as Stokes' Law does not apply to large spheres C is not the correct answer as Stokes' Law does not apply to spheres moving quickly through a fluid	**(1)**
4	**C is the correct answer as efficiency = $\frac{\text{useful energy output}}{\text{total energy input}} = \frac{200\ \text{N} \times 4\ \text{m}}{90\ \text{N} \times 10\ \text{m}}$** A is not the correct answer as this is the total energy input divided by the useful energy output B is not the correct answer as this is the useful energy output divided by the total of the energy output and the energy input D is not the correct answer as this is the total energy input divided by the total of the energy output and the energy input	**(1)**
5	**B is the correct answer as the forces act in opposite directions and not the same direction** A is not the correct answer as a N3 pair of forces do act at the same time C is not the correct answer as a N3 pair of forces do act on different objects D is not the correct answer as a N3 pair of forces do have the same magnitude	**(1)**
6	**C is the correct answer as there is always an acceleration of 9.81 m s^{-2}** A is not the correct answer as there is always an acceleration of 9.81 m s^{-2} B is not the correct answer as there is always an acceleration of 9.81 m s^{-2} D is not the correct answer as there is always an acceleration of 9.81 m s^{-2}	**(1)**
7	**A is the correct answer as strain = $\frac{\text{extension}}{\text{original length}} = \frac{0.2}{50}$** B is not the correct answer as the extension in mm was not converted to cm before being used in the equation for strain C is not the correct answer as the extension in mm was not converted to cm and the incorrect formula of original length/extension was used D is not the correct answer as the incorrect formula of original length/extension was used.	**(1)**

8	**A is the correct answer as E_{grav} decreases at an increasing rate as the ball accelerates towards the ground and increases at a decreasing rate as the ball decelerates away from the ground after the bounce** B is not the correct answer as E_{grav} increases as the height of the ball above the ground decreases and decreases as height of the ball above the ground increases. C is not the correct answer as the graph does not show the change in as E_{grav} at an increasing and decreasing rate as in response A, as the height of the ball above the ground changes D is not the correct answer as E_{grav} increases as the height of the ball above the ground decreases and decreases as the height of the ball above the ground increases.	**(1)**
9	**D is the correct answer** A is not the correct answer as the stiffness constant only applies to objects B is not the correct answer as the Young modulus only applies to materials C is not the correct answer as the stiffness constant only applies to objects and the Young modulus only applies to materials	**(1)**
10	**D is the correct answer as** $\rho_L = \frac{50}{(1.5x)^3}$ and $\rho_S = \frac{50}{(x)^3}$ so $\frac{\rho_L}{\rho_S} = \frac{(x)^3}{(1.5x)^3} = 0.30$ A is not the correct answer as this is $\frac{(1.5x)^3}{(x)^3}$ B is not the correct answer as this is $\frac{1.5\,x}{x}$ C is not the correct answer as this is $\frac{x}{1.5x}$	**(1)**