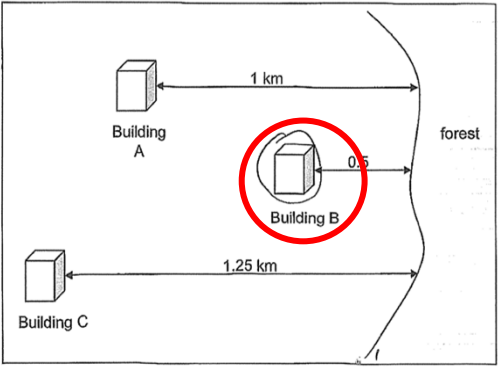


Answer

**2024 Science Prelim
(Rosyth School)**


Booklet B

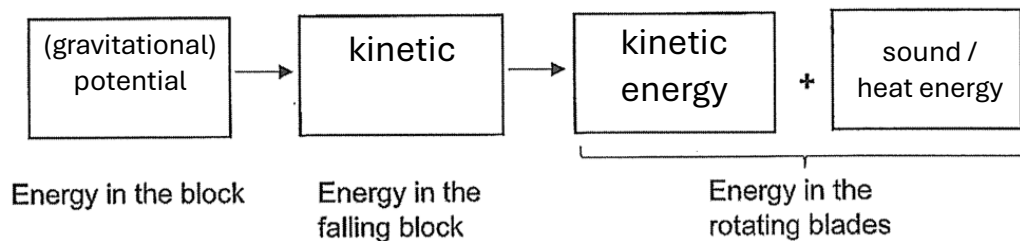
29)	a) Part X is roots. [1m] b) This <u>method is faster as the plant requires less time to form roots</u> and is already at adult stage. [1m]
30)	When the person <u>breathes in air, oxygen in environment enters through the nose, down the windpipe and to the lungs.</u> [1m] <u>Oxygen from the lungs then enters the blood which is transported to the heart</u> through the blood vessel. [1m]
31)	a) To ensure that <u>the mass of the ball is the same.</u> [0.5m] For a fair test, there can <u>only be one changed/independent variable, which is the number of hooks.</u> [0.5m] b) <u>Repeat the experiment for at least 3 times</u> [0.5] and <u>calculate the average</u> [0.5m] c) <u>Fruit J has more hooks, so the fruits can cling better onto animal's body</u> [1m] and can be carried further away from the parent plant. Based on the map, <u>fruit of plant A is also found much further</u> [1m] from the parent plant than fruit of plant B.

32)	a) Oxygen, carbon dioxide [1m] b) <u>As the amount of light increased from 8am to 10am, the size of stomata is the same.</u> [1m] c) Since the <u>stomata is at its maximum size, the amount of carbon dioxide that enters the leaf at already at its maximum which limits the maximum rate of photosynthesis.</u> [1m] hence increasing amount of light has no effect on the stomata size. d) i) Advantage : By <u>closing stomata in the day reduces water loss from the plant.</u> [1m] ii) Disadvantage: When stomata is closed in the day, <u>carbon dioxide from surroundings cannot enter the leaves, hence photosynthesis cannot take place.</u> [1m] and hence have to depend on stored carbon dioxide.
33)	a) Strength [1m] b) For mollusc A, there are <u>less ridges, so less applied force is needed to crack the shell.</u> [1m] <u>More predators will find it easier to use their mouth to break and crack to eat the soft flesh of A inside.</u> [1m]
34)	a) [1m] circle building B  b) 1.5km [1m] c) Changed variable : height of the buildings [1m for all variables correct] Measured variable : chances of bird-window collisions (%) Key variable to be kept the same : distance of buildings to forest

	d) <u>Street lamp B emitted more blue light, causing more bird P to collide with windows of the buildings nearby.</u> [1m] This caused <u>the death rate of bird P to increase</u> [1m] and hence population decreased.
35)	a) Property 1 : poor conductor of heat [1m] Property 2 : opaque / does not allow light to pass through [1m] b) <u>X, waterproof</u> [1m] as it does not absorb any water.
36)	a) Electrical conductor [1m] b) Advantage : if the <u>bulb is fused / blown, the bell will still ring as it is a closed circuit</u> [1m] Disadvantage : <u>more electric current is required, so the battery will be flat faster.</u> [1m] c) The spring has <u>lost its elasticity, so less weight of luggage can compress it</u> [1m] to form a closed circuit.
37)	a) <u>Water</u> gained heat from the body and <u>evaporated into water vapour.</u> [1m] This <u>evaporative cooling causes Johnny to lose heat.</u> [1m] b) <u>Wind increased the rate of evaporation</u> [1m] , causing Johnny to lose heat faster.
38)	a) <u>A force causes a stationary object to move.</u> [1m] b) When switch is closed, <u>electric current flows through the iron rod to become electromagnet which repel the bar magnet from A to B</u> [1m] due to like poles. c) From B to C, since it's down slope, <u>other than magnetic force of repulsion, there is also gravitational force pulls the car downwards,</u> hence faster.

39) a) [1m] for potential energy to kinetic energy

[1m] for kinetic energy to kinetic and sound energy of rotating blades



b) A block with **greater mass possessed more gravitational potential energy when raised higher which is converted to more kinetic energy of the falling block** [1m] which is then **converted to more kinetic and sound energy of the rotating blades.** [1m]

c) Yes, Aluminum. **Comparing B and C, given that the mass is constant, the number of turns made in 20s is more, hence faster.** [1m]

40) a) 8s (between 4s to 12s) [1m]

b) Gravitational force, air resistance/ air friction [1m]

c) Animal A has larger webbed skin, so when falling, **there is more air resistance going against the weight of its body** [1m] hence reducing the speed of the fall.

d) Advantage 1 : Animal A can **escape from its predators more easily as it can stay longer in the air to glide to a safer site.** [1m]

Advantage 2 : Animal A has **less chance to get injured during the fall as it will land with less impact.** [1m]