

Answer

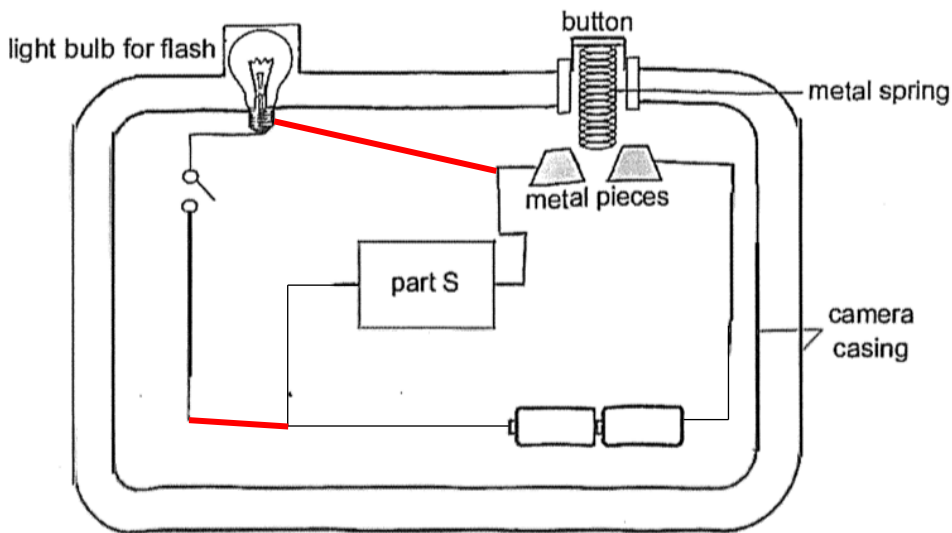
2024 Catholic High School Prelim

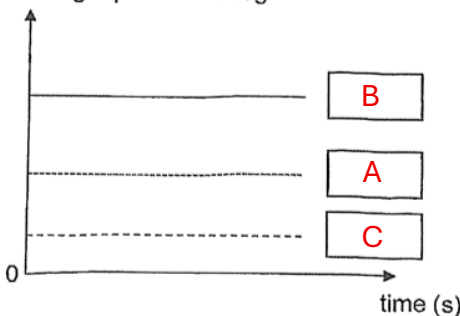


Booklet B

29)	a) System P [1m] b) <u>Movement of water in plant is in a single direction / single circulation</u>, [0.5m] from roots to stem and then to leaves. For human, <u>the blood moves in two directions / double circulation</u>, [0.5m] from heart to lungs and from heart to all parts of body. c) Cell wall provides support and gives the cell a regular shape. [1m]
30)	a) Dead leaves / dead animals [1m] b) <u>Liquid from the composter provide nutrients / mineral salts that the roots absorbed</u> [1m] for healthier growth. c) Since composting is biodegradable, <u>farmers will use less chemical fertilizer and hence reduce water pollution</u> [1m] when chemicals are washed into the rivers.
31)	a) 1 mark <pre> graph TD egg --> larva larva --> pupa pupa --> adult adult --> egg </pre> life cycle of a butterfly b) Adult stage. <u>Pollen grains from A are stucked onto the body of the adult butterfly which is transferred to part B.</u> [1m]

	c) Number of butterflies that visited the flowers / number of ovules in the ovary of the flower [1m]
32)	a) As the wind speed increased, <u>the volume of water left in the container is the least.</u> [0.5m] <u>Due to high wind speed, the size of the tiny opening increased, allowing more water loss to take place / higher rate of transpiration.</u> [1m] This caused the <u>plant's roots to absorb more water</u> [0.5m] from the container. b) Light. Comparing set-ups W and Y, <u>the amount of water decreased at a faster rate</u> [0.5m] in set-up Y. <u>More water is absorbed for higher rate of photosynthesis.</u> [0.5m] c) In a sunny area, leaf E is adapted to have smaller size so that there will be <u>less stomata which can reduce the amount of water loss</u> [1m] during transpiration.
33)	a) As <u>the amount of light increased, the height of the plants increased.</u> [1m] b) <u>Repeat the experiment at least 3 times and calculate the average.</u> [1m] c) Volume of water given to plants / Mass of the plant / Amount of carbon dioxide [1m] d) In <u>the absence of light, the plant cannot make food, hence causing the plant to wither</u> [1m] and die.
34)	a) For the second food chain, animal C has less energy transferred. When <u>animal B feeds on plant A, some of the energy is used for life processes</u> [0.5m] such as movement, growth, etc. Hence, <u>when C feeds on B, there is less energy being transferred.</u> [0.5m]

	b) <u>As the number of trees per unit square of nesting area increased, the population of animal C decreased.</u> [1m] When <u>there are more trees, the predators can better hide from C, hence more predators will kill and eat more C.</u> [1m] c) Type of adaptation_: behavioral adaptation [1m] Explanation : When <u>all the animals C face outwards, they can better sight its predators and hence respond faster to escape from the predators.</u> [1m]
35)	a) Flexible [1m] and waterproof [1m] b) As part B is shiny, <u>more light from firemen's torchlight can be reflected by B into the eyes of the firemen,</u> [1m] allow them to see better in the smoky environment.
36)	a) 1 mark for closed circuit of part S 1 mark for parallel arrangement of light bulb with respect to part S (red lines)  b) The person needs to <u>press another button to close the switch in order to control the light bulb for flash.</u> [1m]

	c) No. Plastic pieces are <u>electrical insulators which do not allow electric current to flow through.</u> [1m]								
37)	a) 1 mark amount of light passed through  b) 1 mark <table border="1"> <thead> <tr> <th>Cut-out shapes</th><th>Types of paper</th></tr> </thead> <tbody> <tr> <td></td><td>A</td></tr> <tr> <td></td><td>C</td></tr> <tr> <td></td><td>B</td></tr> </tbody> </table> c) <u>Prepare another set-up with all the variables being same</u> [0.5m], which includes, torch, light sensor, distance between torch and light sensor but <u>remove the paper</u> [0.5m] for the control set-up.	Cut-out shapes	Types of paper		A		C		B
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38)	a) There was <u>water in between the 2 cups which lost heat to the freezer and froze into solid W.</u> [1m] b) The surface in contact with solid W <u>lost heat to the ice to become a colder surface.</u> [0.5m] <u>More water vapour from the surroundings lost heat to the colder surface</u> [0.5m] and <u>condensed more to form more water droplets.</u> [1m] c) <u>Place both hands around the cups</u> [1m] and rub against to make the cup warm.								

39)	a) Magnetic force, gravitational force [1m] b) When button is pressed, there is <u>a closed circuit which allows electric current to flow through the iron bar, magnetizing</u> [1m] it which <u>repels the magnet as both like poles</u> [0.5m] are facing each other. <u>Gravitational force pulls the mass of the toy downwards.</u> [0.5m] c) Suggestion : Change to a stiffer spring Reason : When compressed, <u>more elastic spring force of the spring can go against the same amount of frictional force between the magnet and the surface</u> [1m] so as to close faster. Suggestion : Change the magnet with greater magnetic strength Reason : There is <u>more magnetic force of attraction pulling the magnet towards the iron bar.</u> [1m]
40)	a) 1 mark <pre> graph LR A[electrical energy at power source] --> B["(chemical) potential energy in battery"] </pre> b) <u>(chemical) potential energy in the charged battery is converted to electrical energy in the closed circuit</u> [1m] which <u>is then converted to kinetic energy of the moving scooter.</u> [1m]