

Answer

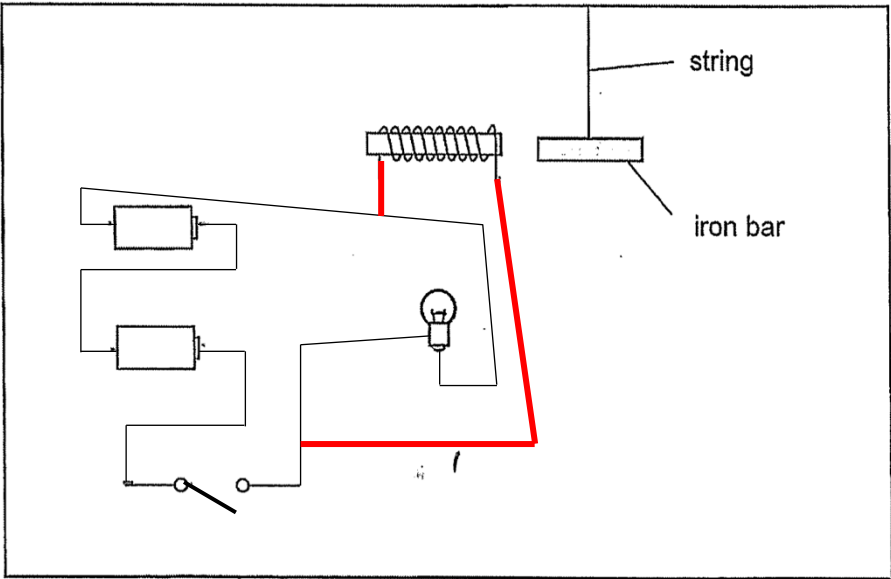
2024 Science
Anglo-Chinese School Primary Prelim



Booklet B

29)	a) <u>Pollination is a process whereby pollen grains are transferred from anther to stigma of a flower.</u> [1m] b) The bee is a <u>pollinator</u>. [1m] As the bee is <u>feeding the nectar buried deep in the flower, pollen grains from the anther is rubbed against the bee's body</u>. When the bee visit another flower of the same species for food, the <u>pollen grains are dropped onto the stigma</u> [1m] c) Both flower E and G have <u>their female parts (stigma, ovary and ovules) present where pollen grains from another anther can be transferred, hence pollination takes place.</u> [1m] Flower F has no female parts, no pollination can take place.
30)	a) As the <u>distance between the plant and torch increased, the rate of photosynthesis decreased.</u> [1m] b) 10cm. <u>The number of oxygen bubbles produced is the most.</u> [1m] When the plant can <u>photosynthesize at the fastest rate, most amount of food is produced</u> [1m] and hence it can carry out its life processes. c) As <u>temperature of the water does affect the rate of photosynthesis, keeping the water at a constant temperature ensures it is a fair test.</u> [1m]
31)	a) Animal B, it has a <u>longer neck which can reach the leaves of the taller trees for food.</u> [1m]

	b) African. <u>With longer metal strip, the temperature of hot water decreased faster.</u> [1m] African has <u>larger ears with greater exposed area to the surroundings, hence able to lose heat faster to the surroundings,</u> [1m] allowing it to cool itself down. c) <u>Prepare an identical set-up with all the same variables as cans X and Y but remove the metal strip for negative control.</u> [1m]
32)	a) Organism Z <u>breathes in dissolved oxygen in the water through the gills.</u> [1m] b) Spray a layer of oil on top of the pond. <u>In the presence of oil, organism Y cannot breathe in oxygen from the surroundings, hence killing Y.</u> [1m] c) Due to global warming, <u>the surrounding temperature will be higher, thus the number of days spent on larva, pupa and pupa will decreased.</u> [1m] As Y takes a <u>shorter time to develop into adult stage, there will be more adults reproducing and spreading diseases to humans.</u> [1m]
33)	a) X : digestive system [1m] Y : circulatory system b) Carbon dioxide. <u>Using water and carbon dioxide, the chlorophyll absorbs light to produce food and oxygen. Food is important to release energy</u> [1m] for life processes in plants. c) In system Y, the <u>heart pumps blood faster, transporting more oxygen to the required muscles to release more energy.</u> [1m] Also, <u>more carbon dioxide produced by the body is transported by the blood flowing back faster to the respiratory system</u> [1m] to be exhaled.

34)	a) Box L. The bread is placed in a <u>warm location with water present</u>, [1m] hence fungus will grow fastest. b) <u>Water on wallet will evaporate under hot sun and without water, mildew will not grow</u> [1m] on the wallet.
35)	a) The string is <u>flexible, hence the weight of the towels cause it to bend downwards</u>. [1m] b) When the wet towels were stucked together, there was <u>less exposed surface area of water to surroundings</u>. [0.5m] The water <u>gained heat slower</u> [0.5m] and caused the <u>rate of evaporation of water to be slower</u>. [1m] c) The <u>mass of the water on top was pulled downwards by gravitational force</u>, [1m] hence causing the lower part to be wetter.
36)	a) In circuit A, the <u>bulbs are arranged in series, so less electric current flows through each bulb</u>. [1m] b) <u>1 mark</u> for 2 batteries connected to bulb (tip and casing) <u>1 mark</u> for parallel arrangement of electromagnet to bulb (red lines) 

37)	a) Insect R has <u>larger wingspan.</u> [0.5m] <u>When R flaps its larger wings, there is more air resistance</u> [0.5m] to <u>produce a greater lifting force to go against its weight,</u> [1m] hence R is able to flap less times to fly. b) A <u>force can change the direction of the motion of the moving object.</u> [1m]
38)	a) Gravitational force, frictional force [1m] b) Surface B. The <u>distance moved is the least.</u> [1m] There is <u>most frictional force between the floor and the feet,</u> [1m] hence providing most grip for the person. c) To ensure that the results are <u>reliable</u> [0.5m] by repeating at least 3 times and <u>calculating the average.</u> [0.5m] d) The water will flow towards the drain hole due to gravitational force. <u>With drier floor, there is more frictional force between the feet and floor to provide more grip.</u> [1m]
39)	a) 1 mark for all correct stated energies <pre> graph LR A[legs kinetic energy] --> B[pedals kinetic energy] B --> C[generator electrical energy] C --> D[bulb light energy] </pre> The diagram illustrates the energy transfer in a bicycle dynamo system. It consists of four boxes connected by arrows. The first box is labeled 'legs' and 'kinetic energy'. An arrow points to the second box, labeled 'pedals' and 'kinetic energy'. Another arrow points to the third box, labeled 'generator' and 'electrical energy'. A final arrow points to the fourth box, labeled 'bulb' and 'light energy'. b) Less kinetic energy of legs is transferred to <u>less kinetic energy of pedals which is converted to less electrical energy of the generator which is converted to less light energy</u> [1m] of bulb. c) There is <u>frictional force between X and the wheels. Due to wear and tear, eventually part X will be damaged and the bulb will not light up.</u> [1m]

40)	a) The <u>temperature of hot food in bag B decreased at a slower rate,</u> <u>indicating B is a poorer conductor of heat.</u> [1m] <u>Hot food placed in B</u> <u>will lose heat slower to the cooler surroundings</u> [1m] and hence kept warm longer. b) As the <u>bag B stays warmer longer, the inner surface is of higher</u> <u>temperature.</u> [1m] <u>Less hot water vapour condensed to form less</u> <u>water droplets.</u> [1m]
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