

Answer

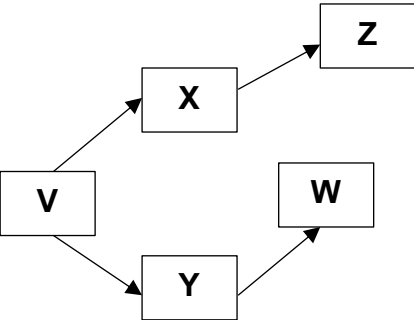
2024

Nan Hua Primary School Prelim



Booklet B

29)	a) Cell P : egg [1m] Cell Q : sperm b) Nucleus [1m] c) <u>Fertilisation is a process whereby a male reproductive / sex cell fuses with a female reproductive / sex cell.</u> [1m]
30)	a) Ovary [1m] b) When insect M visits the flower, there will be <u>higher rate of pollination in plant Y which will result in higher rate of fertilization.</u> [1m] c) The <u>juicy flesh will attract the young to feed on the flesh whereby some of the indigestible seeds will be swallowed and are carried further away from the parent plant.</u> [1m]
31)	a) When the person is jogging, <u>the heart pumps blood faster from the heart to the leg.</u> [0.5m] As there is <u>more blood</u> to the leg muscle, the <u>blood will transport more oxygen and more digested food to the required muscles</u> [1m] to <u>release more energy.</u> [0.5m] b) <u>Jogging after a meal will decrease the volume of blood transported to the small intestine.</u> [1m] As there is <u>less blood flowing to the small intestine, the rate of absorption of digested food from the small intestine to the blood will be greatly reduced.</u> [1m]

32)	a) Water-carrying tubes. <u>Red-colored water is absorbed from the bottom of the stem and is transported through water-carrying tubes to the top of the stem.</u> [1m] b) <u>As the temperature of surrounding air increased from 0 °C to 40°C, the rate of photosynthesis increased.</u> [1m] <u>As the temperature of surrounding air increased from 40 °C to 60 °C degrees, the rate of photosynthesis decreased.</u> [1m] c) The rate of photosynthesis decreased. <u>As the water carrying tubes are damaged, less water is transported to the leaves, so the plant make food at a slower rate.</u> [1m]
33)	a) 1 mark for $V \rightarrow X \rightarrow Z$ 1 mark for $V \rightarrow Y \rightarrow W$  <pre> graph LR V[V] --> X[X] X --> Z[Z] V --> Y[Y] Y --> W[W] </pre> b) Fish X is small enough to swim into the cave and hide from the bigger fish Z. By laying eggs in the cave, <u>Z is not able to see the eggs and cannot enter the small cave to eat the eggs,</u> [1m] keeping the eggs safe. <u>More eggs can then hatch into more young fish safely as less eggs are eaten.</u> [1m]

34)	a) The <u>eyesspots of moth H can scare its predators away</u> [1m] as they mimic and look like another animal that could eat the predator. This gives <u>moth H time to escape and fly away from its predators.</u> [1m] b) The <u>colour and patterns of moth H can blend into the light-coloured bark of tree Y, so H can hide from its predators.</u> [1m] <u>Less H will be spotted and eaten by the predators, hence the death rate will decreased.</u> [1m]																
35)	a) A shadow is formed when <u>light from the light source is blocked by an opaque object.</u> [1m] b) [1 mark] <table border="1"> <thead> <tr> <th>Object</th><th>Tick (✓) the correct box</th><th>Direction</th><th>Tick (✓) the correct box</th></tr> </thead> <tbody> <tr> <td>lamp T</td><td></td><td>towards wooden plate X</td><td></td></tr> <tr> <td>wooden plate X</td><td></td><td>away from wooden plate X</td><td>✓</td></tr> <tr> <td>screen Z</td><td>✓</td><td>towards lamp T</td><td></td></tr> </tbody> </table> c) Object B is transparent. <u>Most light from lamp T can travel in a straight line and the light will be blocked by wooden plate X</u> [1m] to form the same size of shadow.	Object	Tick (✓) the correct box	Direction	Tick (✓) the correct box	lamp T		towards wooden plate X		wooden plate X		away from wooden plate X	✓	screen Z	✓	towards lamp T	
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36)	a) <u>Water vapour from the surroundings lost heat to the metal surface and condensed into water droplets</u> [1m] which will drip into the collector. b) <u>Metal is a good conductor of heat,</u> [0.5m] so the water vapour can lose heat faster and <u>condense faster to more water droplets.</u> [0.5m] c) <u>As the number of bumps on body increased, the volume of water collected increased due to increased exposed surface area.</u> [1m] When <u>more water vapour condensed to form more water droplets,</u> <u>Animal B can drink more water for its life processes.</u> [1m]																

37)	a) When switch is closed, <u>electric current flows through iron rod R, causing it to become electromagnet which attracts iron bar Q upwards</u> [1m] to touch R. b) <u>The light bulb will not light up and rod R will be demagnetized.</u> [1m] When bar Q touched rod R, there is <u>an open circuit and electric current cannot flow through the bulb and rod D</u>, [1m] causing bulb not to light up and R to be demagnetized respectively. c) Yes. <u>Aluminium is an electrical conductor which allows electric current to flow through the closed circuit so as to light up the bulb</u> [1m] when Q is touching P.
38)	a) [1 mark] <pre> graph LR A["(chemical) potential Energy in the battery of the laptop"] --> B["electrical Energy of the laptop"] B --> C["(chemical) potential Energy in the battery of the phone"] </pre> b) Decreased. When laptop is connected to the phone, <u>some of the (chemical) potential energy of laptop's battery is converted to electrical energy and then converted to potential energy</u> [0.5m] of the phone's battery, causing <u>less potential energy of laptop's battery to be converted to less electrical energy.</u> [0.5m]

39) a) **Heat is a form of energy but temperature of an object is the measurement of its degree of hotness.** [1m]

b) 1 mark

Variable	Keep the same
The amount of boiling water in each container.	✓
The time taken for the water to reach 50 °C.	
The type of materials used to make the container.	
The thickness of materials used to make the container.	✓

c) Container Z. Based on the line graph, the **temperature of boiling water decreased at the slowest rate,** [0.5m] so **Z is the poorest conductor of heat.** [0.5m] **Hot water lost heat to the cooler surroundings at the slowest rate.** [1m]

d) For the first 10 minutes, **the temperature decreased at the fastest rate, by taking more measurements per minute will increase the precision** [1m] and accuracy of the readings.

40) a) Elastic spring force, gravitational force [1m]

b) i) Less. **Based on the table, given the same mass, compression of spring G is more,** [1m] hence the final length of G will be less. As spring **G is less stiff, the same amount Andy's weight will go against less elastic spring force of G,** [1m] causing G to be shorter.

ii) Repeat the experiment at least 3 times and calculate the average. [1m]