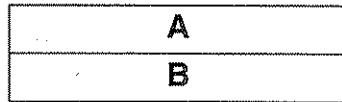


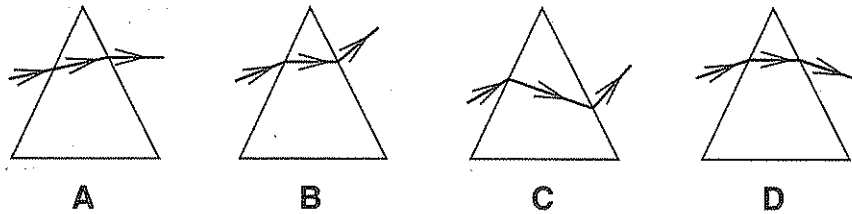
- (g) **A** and **B** are identical copper blocks. **A** is heated to $60\text{ }^{\circ}\text{C}$; **B** is heated to $40\text{ }^{\circ}\text{C}$. They are then placed as shown on a bench in a laboratory at $20\text{ }^{\circ}\text{C}$.



After a long time, the temperature of each one will be

$20\text{ }^{\circ}\text{C}$ $40\text{ }^{\circ}\text{C}$ $50\text{ }^{\circ}\text{C}$ $60\text{ }^{\circ}\text{C}$.

- (h) The diagram which correctly shows the path of a beam of red light through a prism is



- (i)



P is a magnet; **O** is identical in shape and size to **P**. When **P** is brought close to **O**, it causes **O** to move away from it. **O** must

be a magnet

be made of iron

be made of non-magnetic material

contain some iron.

- (j) We can see an eclipse of the Moon when

the face of the Moon is turned away from the Sun

the Moon is between the Earth and the Sun

the Moon passes into the Earth's shadow

the Sun is between the Earth and the Moon.

- (k) A cube of metal, with edges 2 cm in length, exerts a force of 0.4 N on a table. The pressure the cube exerts on the table, in N/cm^2 , is

0.05 0.1 0.2 10 .

(11)

1. Underline the number, phrase, symbol or word which best completes each of the following sentences.

(a) In an electrical circuit, the component denoted by the symbol **(A)** measures the

amount of current **amount of resistance**
number of cells **number of lamps.**

(b) The Hubble Space Telescope is kept in orbit around the Earth by

engines **friction** **gravity** **magnetic forces.**

(c) A metal teaspoon is placed into a mug of hot tea. The spoon heats up by the process of

conduction **convection** **diffusion** **radiation.**

(d) A car is moving along a level road at constant speed. Compared with the resistance acting against the car, the forward force on it is

less **much greater** **slightly greater** **the same.**

(e) The International Space Station can be seen as a bright object in the night sky because it

has many powerful floodlights on board

reflects light from the Earth to our eyes

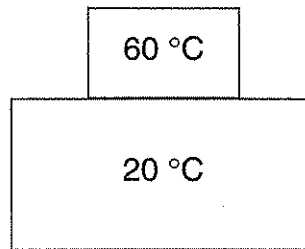
reflects light from the Moon to our eyes

reflects light from the Sun to our eyes.

(f) Tim plays a note on his flute. He then plays the same note, but blows harder. Compared with the first note, the second one will be

identical **louder** **of lower pitch** **softer.**

(g)



The diagram above shows two solid blocks. Thermal energy will flow from one block to the other

downwards because of gravity

downwards because the top one is hotter

upwards because heat rises

upwards because the bottom one is bigger.

(h) A bungee jumper's rope must have gone past its elastic limit if it

has already been stretched and released many times

no longer returns to its original length when the stretching force is removed

stretches in proportion to the load

obeys Hooke's law.

(8)

1. Underline the word, phrase or number which best completes each of the following sentences.

(a) One component which gives out light, when a current flows through it, is a

buzzer **LED** **LDR** **relay.**

(b) The area of the front page of this booklet is about

6 cm² **60 cm²** **600 cm²** **6 000 cm².**

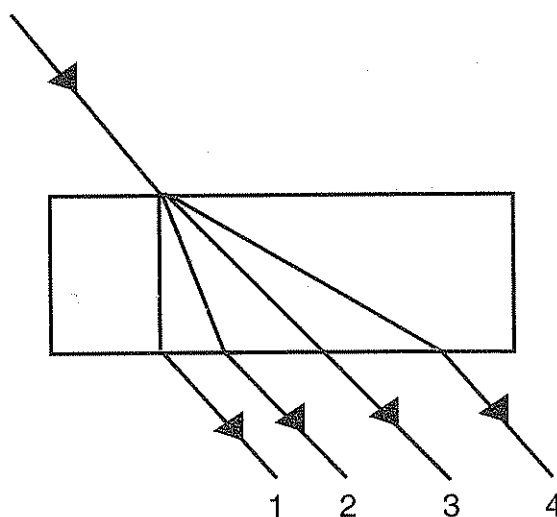
(c) An astronaut with a mass of 120 kg would have a weight of 96 N if he were standing on Pluto. This means that Pluto's gravitational pull on each kg is

0 N **0.8 N** **1.25 N** **10 N.**

(d) A car is travelling along a level road. The total of all the frictional forces acting is 2 000 N. The driver wants to keep the car going at the same speed. To do this, the engine must produce a forwards force of

2 000 N **just over 2 000 N**
less than 2 000 N **much more than 2 000 N.**

(e) The line which best shows the path of a ray of light through the glass block is

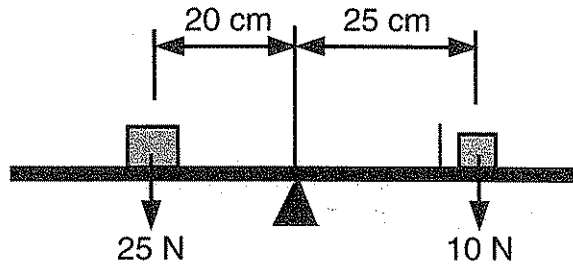


(f) A small drum makes a higher-pitched note than a large drum because, when it is struck, it vibrates

faster **less** **more** **more slowly.**

- (h) The time taken for the Moon to orbit the Earth is nearest to
1 day 7 days 28 days 365 days.

(i)



The see-saw in the picture above will

- be balanced bend
tip down to the left tip down to the right.

- (j) A toy parachute is dropped from a high balcony on a still day. After a while, the frictional force from the air is equal to the weight of the parachute. When this occurs, the speed of the parachute is

- decreasing increasing steady zero.

1. Underline the word or phrase which best completes each of the following sentences.

(a) The circuit symbol for a fuse is



(b) A flash of lightning is seen before the thunder is heard because

light is brighter than sound

sound travels faster than light

sound travels more slowly than light

the flash happens long before the noise is made.

(c) A box has a weight of 20 N and a base area of 5 cm². When it is placed on a table, the pressure on the table in N/cm² is

0.25

4

25

100.

(d) A tuning fork is struck and sounds middle C. Another tuning fork, when struck, sounds a note of higher pitch. Compared with the first tuning fork, the vibrations of the second tuning fork must be

bigger

of higher frequency

of lower frequency

smaller.

(e) The Moon is kept in orbit around the Earth by

a gravitational force

an electrical force

the atmosphere of the Earth

the rotation of the Earth.

(f) The height of an old oak tree is likely to be nearest to

3 m

30 m

300 m

3 000 m.

(g) The nearest planet to the Sun is

Mars

Mercury

Earth

Venus.

- (e) Planet X is closer to the Sun than planet Y, and X rotates more slowly on its axis than planet Y. The pair which correctly compares the lengths of the year and day on the two planets, is:

<u>year</u>	<u>day</u>
longer for X	longer on X
longer for X	shorter on X
shorter for X	longer on X
shorter for X	shorter on X

- (f) A very hot object in orbit round the Moon would
cool down because thermal energy would be lost by conduction
cool down because thermal energy would be lost by radiation
get hotter because of friction
stay at the same temperature because it is in space.

- (g) Thermal energy is transferred by convection
in gases and liquids in gases only in liquids only in solids only.

- (h) An electromagnet can be made stronger by
using a copper core using an iron core
using bare wire for the coil reversing the battery.

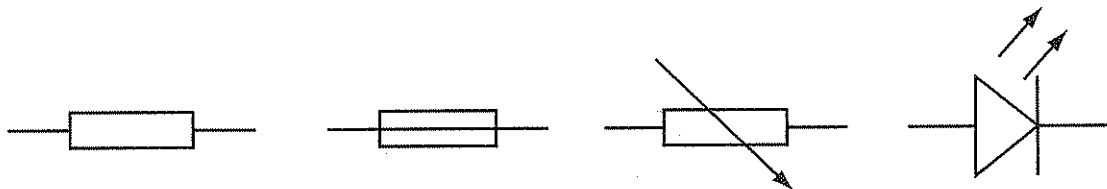
- (i) A rope is 100 cm long and has a mass of 500 g. The mass of 1 cm of the rope will be

0.05 g 0.5 g 5 g 50 g.

- (j) An instrument which could be used to measure the weight of an object is
an ammeter a newton meter a ruler a stop clock.

1. Circle the word, phrase, number or symbol which best completes each of the following sentences.

(a) The correct symbol for a variable resistor is



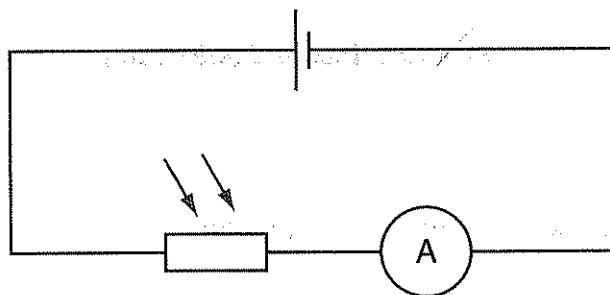
(b) A spring stretches 8 cm when a 400 g mass is hung from it. Three springs which are identical to the first one are joined in series and a 200 g mass is hung from the bottom one. The total stretch in cm of this combination of three springs will be

- 4 12 24 48.

(c) A solid block of metal has a density of 8 g/cm^3 . A block of the same metal which has twice the volume of the first will have a density in g/cm^3 of

- 4 8 10 16.

(d)



The pair which correctly shows the behaviour of the circuit above when more light is shone on the LDR is:

current through LDR

reading on ammeter

decreases

stays the same

increases

stays the same

decreases

decreases

increases

increases

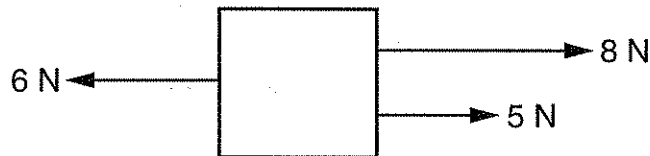
(f) We are gradually making greater use of wind power to generate electricity. The source of the energy which causes the wind is

coal gravity the Moon the Sun.

(g) A guitarist plays two notes. The second one is louder than the first. This is because its sound wave has a

higher amplitude higher frequency
higher speed lower amplitude.

(h) Three people are pulling on a box using the forces shown.

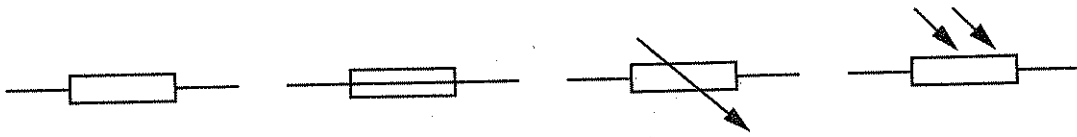


If the box is moving to the right at a steady speed, the force of friction must be

zero 7 N to the left 7 N to the right 13 N to the left. (8)

1. Underline the word, letter, number, phrase or symbol which best completes each of the following sentences.

(a) The correct symbol for a fuse is



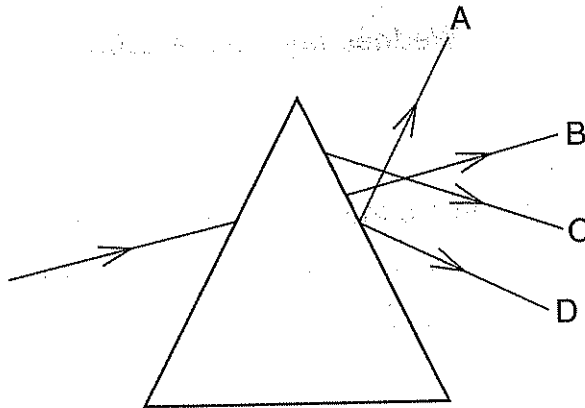
(b) A component which converts electrical energy into sound energy is

an ammeter **a buzzer** **a resistor** **a switch.**

(c) A compass will point in a particular direction because it is affected by the

Earth's charge **Earth's gravity**
Earth's magnetic poles **Moon's gravity.**

(d) The diagram shows a ray of white light entering a glass prism. Underline the letter beside the arrow which shows the direction in which red light could emerge from the prism.



(e) Summer occurs six months after winter. In this time the

Earth has moved closer to the Sun

Earth has orbited half way round the Sun.

Earth has rotated 180 degrees

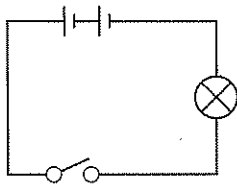
Moon has orbited half way round the Earth.

1. Underline the word, letter, number, phrase or symbol which best completes each of the following sentences.

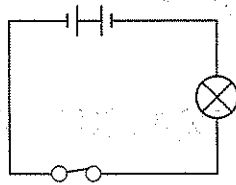
(a) The unit of force is measured in

ampere joule newton pascal.

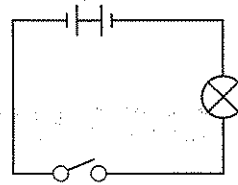
(b) A circuit in which the lamp would be lit is



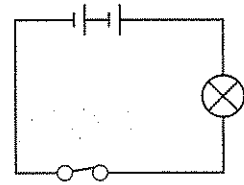
A



B



C



D

(c) A boy runs 100 m in 20 s. His speed in m/s is

0.2 5 20 100.

(d) The picture shows a tug-of-war. Neither team is winning. The forces on the rope are



balanced in the same direction unbalanced zero.

(e) A ball rolling along a flat table will slow down because

of friction of its weight
the forces are balanced there is no force on it.

(f) The mass of a Common Entrance candidate will be closest to

5 kg 50 kg 500 kg 5 000 kg.

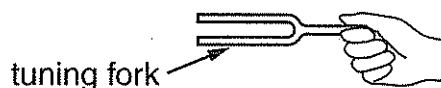
(g) On Earth, gravity exerts a force of 10 N/kg. An elephant has a weight of about 40 000 N. Its mass is about

4 000 kg 40 000 kg 4 000 tonnes 400 000 tonnes.

(g) A renewable energy source is

coal gas oil wind.

(h) In the diagram, the tuning fork gives a note of middle C when struck.



To produce a note of a *higher* pitch one could

strike it harder

strike it more gently

strike one with longer prongs so they vibrate more slowly

strike one with shorter prongs so they vibrate more quickly.

(i) A spring extends by 4 cm when a load of 1 N is hung on it. When a load of 5 N is hung on the same spring, the extension will be

20 cm

24 cm

26 cm

30 cm.

(j) Energy is transferred through the metal bottom of a saucepan from the cooker to the food by

conduction

convection

dispersion

radiation.

(10)

1. Underline the word, number or phrase which best completes each of the following sentences.

(a) A bar magnet always has a

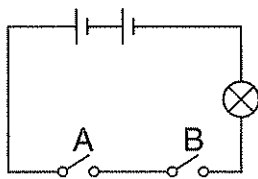
north pole only

north-seeking pole and a south-seeking pole

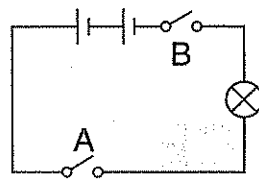
positive and negative end

south pole only.

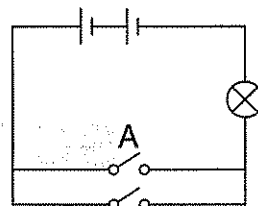
(b) The circuit below in which the lamp will light if switch A or switch B is closed is



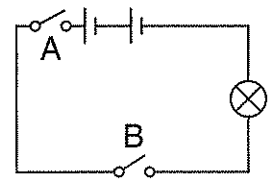
1



2



3



4

(c) In a series circuit, the current can be increased by

adding an ammeter

adding another lamp in series

increasing the number of cells

increasing the resistance in the circuit.

(d) A brick has a weight of 10 N and one face has an area of 200 cm². When that face is on the ground, the pressure it exerts in N/cm² is

0.05

10.0

20.0

2000.

(e) A car travels a distance of 100 m in 10 s. Its speed in m/s is

0.1

10

100

1000.

(f) The Moon orbits the Earth once every

28 days

day

week

year.

1. Underline the number, word or phrase which best completes each of the following sentences.

(a) The mass of this examination paper is most likely to be

3 g **30 g** **300 g** **3 000 g.**

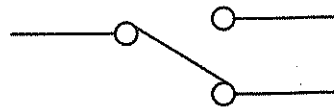
(b) If the particles in a substance are arranged in a regular pattern, it is likely to be a

gas **liquid** **solid** **vacuum.**

(c) A planet whose distance from the Sun is less than that of the Earth is

Mars **Jupiter** **Saturn** **Venus.**

(d) The type of switch denoted by this symbol is

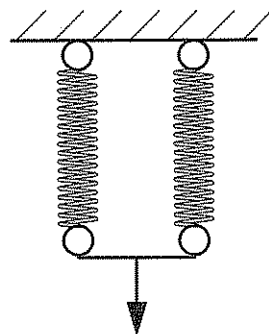


push **relay** **SPDT** **SPST.**

(e) A unit used for measuring the kinetic energy of a car is

hertz **joule** **km/h** **newton.**

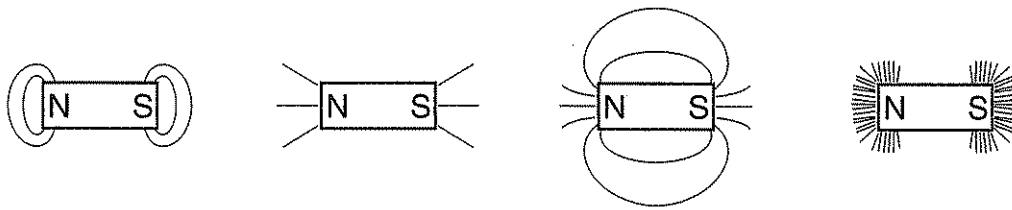
(f) When two springs are hung up as shown,



they are said to be in

line **opposition** **parallel** **series.**

(g) The magnetic field pattern around a bar magnet might look like this:



(h) Two children who have exactly the same weight sit at the positions shown below.



The see-saw will

exactly balance

tip down on the left

tip either side alternately

tip down on the right.

(i) On the Moon, gravity exerts a force of 1.6 N on every kg. The weight of a 70 kg man on the Moon is

41.2 N

70 kg

112 N

700 N.

(j) Energy is transferred from the Sun to the Earth by

conduction

convection

dispersion

radiation.

(10)

1. Underline the word, number, phrase or diagram which best completes each of the following sentences.

(a) The north-seeking pole of a bar magnet will always repel a

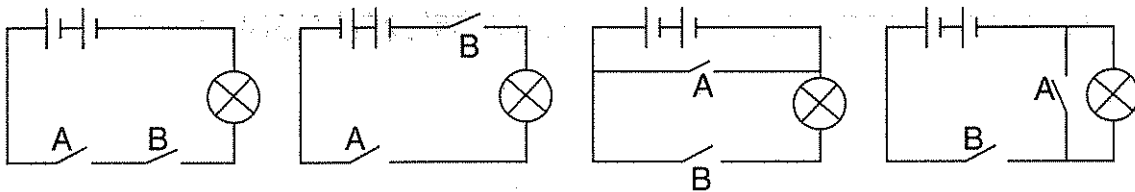
negative pole

north-seeking pole

positive pole

south-seeking pole.

(b) In which of the following circuits will the lamp light if switch A and switch B are both closed?



(c) If a sound is getting louder, its sound wave has an increasing

amplitude

frequency

speed

wavelength.

(d) A girl has a weight of 500 N and stands on one heel which has an area of 4 cm². The pressure she exerts on the ground in N/cm² is

0.008

125

504

2000.

(e) A boy runs a race of 100 m in 14 s. His speed in m/s is

0.14

7.1

86

1400.

(f) A man with a parachute is falling at a steady speed. The best description of the forces on the parachute is

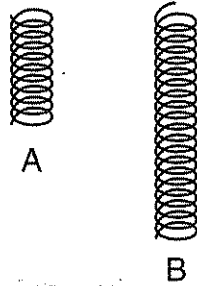
the downward force is bigger than the upward forces

the upward and downward forces are balanced

the upward forces are bigger than the downward force

there are no forces on the man and parachute.

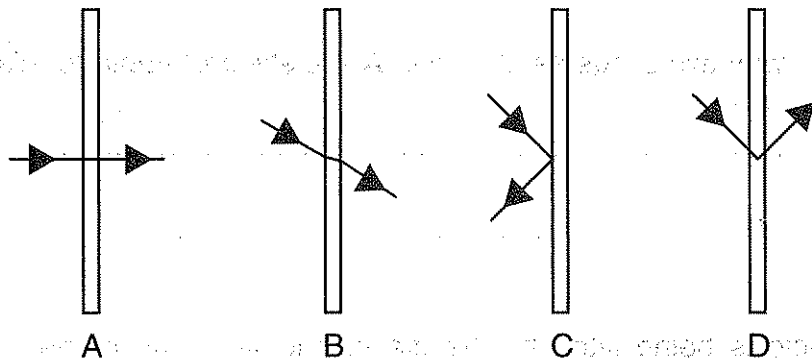
- (i) A spring which is 12 cm long is cut into two parts, A and B. The unstretched length of A is 4 cm; the unstretched length of B is 8 cm.



When 100 g are hung from A, its length becomes 6 cm. When 100 g are hung from B its length will become

- 10 cm 12 cm 14 cm unpredictable.

- (j) The diagram which does **not** show the possible path of a ray of light hitting a thin, flat sheet of glass is:



(10)

1. Underline the number, word, phrase or diagram which best completes each of the following sentences.

(a) The one on this list which is **not** a force is

friction **gravity** **mass** **weight.**

(b) A unit used for measuring energy is

gram **joule** **newton** **pascal.**

(c) Thermal energy cannot be transferred by

conduction **convection** **dispersion** **radiation.**

(d) The substance in this list whose density is much greater than that of the others is

aluminium **gold** **magnesium** **water.**

(e) Near a bar magnet, the needle of a plotting compass always points

in the direction of the magnetic field **north**
south **towards the centre of the Earth.**

(f) To increase the loudness of a sound you have to increase its

amplitude **frequency** **pitch** **speed.**

(g) A renewable energy resource could be

coal **gas** **oil** **wind.**

(h) A world-class sprinter can run 100 m in 10 s. At this speed, in 1 minute he would run

10 m **$16\frac{2}{3}$ m** **600 m** **1000 m.**

1. Underline the word or phrase which best completes each of the following sentences.

(a) A tortoise is a reptile because it has

a backbone a shell dry, scaly skin gills.

(b) The molecules which digest food are called

chlorophyll DNA enzymes haemoglobin.

(c) Many plants store glucose as

minerals protein starch vitamins.

(d) A tomato is a fruit because it contains

minerals seeds vitamins water.

(e) Muscles which occur in pairs working against each other are called

aggressive anachronistic antagonistic antipathetic.

(f) The plant cells with a large surface area for taking up water are root

cortex cells hair cells skin cells surface cells.

(g) The part of a human sperm cell which enters the egg at fertilisation is

all of it the head the middle piece the tail.

(h) Aerobic respiration produces

carbon dioxide glucose oxygen starch.

(i) Disease can be caused by

bacteria poor diet viruses any of these.

(j) In a cell, genes

**are the 'brains' control the production of protein
prevent disease strengthen the nucleus.**

(10)

1. Underline the word or phrase which best completes each of the following sentences.

(a) Starch is digested in the

large intestine liver mouth stomach.

(b) In plants, chlorophyll is always found in

bark fruits leaves roots.

(c) In mammals, the cells which are involved in fertilisation are

ciliated epithelia neurones ova (eggs) white blood cells.

(d) Mammals normally use proteins for

insulation repairing cells strengthening bones supplying energy.

(e) A healthy human's faeces contain

amino acids fibre glucose starch.

(f) Plants take up nitrates from the soil using

flowers leaves roots stems.

(g) During the night, green plants

neither respire nor photosynthesise photosynthesise
respire respire and photosynthesise.

(h) Which one of the following processes does **not** occur in fungi?

excretion photosynthesis reproduction respiration

1. Underline the word or phrase which best completes each of the following sentences.

(a) When added to starch, iodine solution turns

black **green** **orange-red** **yellow.**

(b) Cytoplasm in human cells contains

a large vacuole **a nucleus** **chloroplasts** **starch grains.**

(c) Root hair cells

absorb sugar from the soil **absorb water from the soil**
release nitrogen into the soil **stick to soil particles.**

(d) Starch is a

carbohydrate **mineral** **protein** **vitamin.**

(e) Glucose made during digestion then enters the

blood stream **heart** **liver** **muscle cells.**

(f) For healthy growth, green plants should be given

amino acids **glucose** **nitrate** **starch.**

(g) When carbon dioxide is added to limewater, the solution turns

cloudy **green** **purple** **red.**

(h) Yeasts, mushrooms and moulds are classified as

animals **bacteria** **fungi** **plants.**

(i) Predators are

carnivores **herbivores** **primary consumers** **producers.**

(j) In a skeleton, muscles are attached to bones by

fibres **ligaments** **skin** **tendons.**

(10)

1. Underline the word, number or phrase which best completes each of the following sentences.

(a) At night, a plant will take up

argon **carbon dioxide** **nitrogen** **oxygen.**

(b) All arthropods have

a backbone **a hard exoskeleton** **ten legs** **wings.**

(c) In humans, digestion begins in the

intestines **liver** **mouth** **stomach.**

(d) When a flower is fertilised, the ovule will develop into a

bulb **fruit** **seed** **shoot.**

(e) Plant cell walls contain

cellophane **cellulite** **celluloid** **cellulose.**

(f) A microscope with an eyepiece lens of $\times 10$ and an objective lens of $\times 40$ will have a total magnification of

$\times 0.25$ **$\times 4$** **$\times 50$** **$\times 400.$**

(g) For aerobic respiration, all seeds need

carbon dioxide **light** **oxygen** **water.**

(h) The substance which moves to the lungs from the blood is

carbon dioxide **nitrogen** **oxygen** **water.**

(i) All food chains start with a

carnivore **consumer** **predator** **producer.**

1. Underline the word or phrase which best completes each of the following sentences.

(a) The part of a leaf cell which makes oxygen is the

cell membrane chloroplast nucleus vacuole.

(b) One food which contains a lot of calcium is

bread chicken meat milk orange juice.

(c) After digestion, the waste materials are expelled from the body through the

anus colon large intestine rectum.

(d) The oxygen needed by a fetus

is swallowed by the mouth

is breathed in through the nose

moves from the mother across the placenta

moves to the mother across the placenta.

(e) In a balanced diet, carbohydrates provide

energy essential minerals fibre insulation.

(f) The brain is protected by

bone hair muscle skin.

(g) The large surface area of the lungs is reduced by

eating crisps

drinking alcohol

playing squash

smoking cigarettes.

(h) In humans, inherited variation means differences between people which are

passed from parents to offspring

caused by cosmetic surgery

caused by a vitamin deficiency

caused by athletic training.

(8)

1. Underline the word or phrase which best completes each of the following sentences.

(a) In humans, lack of vitamin C causes

constipation **scurvy** **tooth decay** **weak bones.**

(b) Methylene blue stain is used to observe

cell walls **chloroplasts** **nuclei** **vacuoles.**

(c) Animals which have backbones include

bacteria **earthworms** **fish** **insects.**

(d) Substances made during digestion are

absorbed into the blood **carried to the colon**
egested through the anus **stored in bones.**

(e) For healthy humans, most energy is usually obtained from

carbohydrates **proteins** **vitamins** **water.**

(f) The fetus is nourished by the

bladder **ovaries** **liver** **placenta.**

(g) The risk of developing heart disease can be increased by

eating vegetables **low-fat diets** **regular exercise** **smoking.**

(h) Spiders which eat insects are

consumers **herbivores** **omnivores** **producers.**

(i) Flies belong to the kingdom of the

animals **bacteria** **fungi** **plants.**

1. Underline the word or phrase which best completes each of the following sentences.

(a) Respiration releases

energy glucose oxygen starch.

(b) An example of a human organ is

blood a nerve cell a sperm the heart.

(c) The disease which is caused by lack of calcium is

cold rickets scurvy tuberculosis.

(d) In digestion, enzymes

break down large food molecules kill bacteria
cause the intestine walls to contract make the gut acidic.

(e) The nutrients used for growth and repair are

carbohydrates fats proteins vitamins.

(f) A green plant is an example of a

carnivore consumer predator producer.

(g) In plant cells, most DNA is found in the

cell membrane cell wall cytoplasm nucleus.

(h) Animals

photosynthesise have cellulose cell walls
move around reproduce with seeds.

(i) Plants absorb light energy with

cellulose chlorophyll glucose starch.

1. Underline the word, number or phrase which best completes each of the following sentences.

(a) All living organisms

breathe **make food** **make oxygen** **respire.**

(b) Animal cells always have

a cell wall **a large vacuole** **chloroplasts** **cytoplasm.**

(c) Iodine solution is used to detect the presence of

fat **protein** **starch** **sugar.**

(d) A healthy woman normally releases an egg approximately every

28 days **28 hours** **28 minutes** **28 weeks.**

(e) All fish, amphibians, reptiles, birds and mammals have

a backbone **chloroplasts** **lungs** **the same diet.**

(f) A microscope with an objective lens of $\times 40$ and an eyepiece of $\times 10$ will have a total magnification of

$\times 40$ **$\times 50$** **$\times 400$** **$\times 410.$**

(g) During daylight, plant leaves absorb

carbon dioxide **nitrogen** **oxygen** **water.**

(h) Carbon dioxide carried in the blood is made during

digestion **photosynthesis** **respiration** **reproduction.**

(i) The chemical which absorbs light in green leaves is

chlorophyll **glucose** **starch** **water.**

(g) Photosynthesis

adds carbon dioxide to the air

adds water to the air

removes carbon dioxide from the air

removes oxygen from the air.

(h) The kingdom which makes pollen is

animal

bacteria

fungi

plant.

(i) In mammals, oxygen enters the blood across the

gills

lungs

mouth

skin.

(j) The acidic chemicals produced by cigarette smoke can be detected using

iodine solution

limewater

methylene blue stain

Universal Indicator.

(10)

1. Underline the word or phrase which best completes each of the following sentences.

(a) In a human, the smallest structure is

a cell **a nucleus** **an organ** **a tissue.**

(b) The part of a plant cell which is sensitive to light is a

cell membrane **cell wall** **chloroplast** **cytoplasm.**

(c) DNA is found

in all living cells **only in animal cells**
only in bacteria **only in plant cells.**

(d) A zygote is

a fertilised egg **a newborn baby** **a sperm cell** **an egg cell.**

(e) Eating too little vitamin C can cause

a heart attack **influenza** **rickets (brittle bones)** **scurvy.**

(f) Joints

allow movement between bones
are pulled back to their original length by antagonistic muscles
attach muscles to bones
protect delicate organs of the body.

1. Underline the word or phrase which best completes each of the following sentences.

(a) The production of urine is an example of

digestion egestion excretion secretion.

(b) The genes of a plant cell are found in the

cell wall cytoplasm cell surface membrane nucleus.

(c) The iodine test is used to detect the presence of

carbon dioxide chlorophyll starch sugar.

(d) During exercise the human body produces more

carbohydrate carbon dioxide fat oxygen.

(e) In flowering plants water is normally taken from the soil by

flowers leaves roots stems.

(f) A good athlete can run at

1.0 m/s 10 m/s 100 m/s 500 m/s.

(g) The energy source for photosynthesis is

chlorophyll light starch water.

(h) A pond is an example of

an environment a food chain a food web a habitat.

(i) Mammals differ from other vertebrates because normally they

are covered with hair are four-legged are warm-blooded have lungs.

(j) The digestion of food is mainly brought about by

enzymes hormones minerals vitamins.

(10)

1. Underline the word or phrase which best completes each of the following sentences.

(a) Beef steak is a good source of

carbohydrate fibre protein sugar.

(b) Arteries carry blood

away from the heart away from the lungs
to the heart to the lungs.

(c) Children growing healthy bones need food containing

aluminium calcium fibre sulphate.

(d) Carbon dioxide passes from a fetus to the mother across the

amnion oviduct placenta uterus.

(e) From the soil, root hair cells can absorb

carbon dioxide glucose nitrates protein.

(f) An organism which is a fungus is a

mouse mushroom penguin plant.

(g) Our blood contains white blood cells whose main function is to

absorb water kill microbes
transport glucose transport oxygen.

(h) Genes are found inside a cell in the

cell wall nucleus surface membrane vacuole.

1. Underline the word or phrase which best completes each of the following sentences.

(a) Pollen grains are made in the

anther **leaf** **ovary** **stigma.**

(b) The part of a leaf cell which carries out photosynthesis is the

cell surface membrane **cell wall** **chloroplast** **vacuole.**

(c) Glucose is a

carbohydrate **fat** **mineral** **protein.**

(d) A developing fetus receives oxygen from its mother across the

amnion **oviduct** **placenta** **uterus.**

(e) The vertebrates which lay eggs with hard shells are

amphibians **birds** **fish** **reptiles.**

(f) Light energy in photosynthesis is absorbed by

carbon dioxide **chlorophyll** **oxygen** **water.**

(g) The producers in food chains are

blackbirds **earthworms** **humans** **plants.**

(h) The digestion of starch produces

fat **glucose** **protein** **water.**

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1. **Underline** the word or phrase which best completes each of the following sentences.

- (a) To get energy quickly, an athlete should eat a
bar of chocolate **boiled egg** **glucose tablet** **ham sandwich.** (1)
- (b) An animal with three pairs of legs is
an arthropod **an insect** **a spider** **a vertebrate.** (1)
- (c) Fungi are classified separately from plants because they do not
feed **move** **photosynthesise** **respire.** (1)
- (d) The vacuole of a plant cell contains mainly
cellulose **chlorophyll** **cytoplasm** **water.** (1)
- (e) At puberty, a change which occurs in a boy is
breast development **menstruation**
deepening of the voice **ovulation.** (1)
- (f) In a food chain the first (primary) consumer is a
carnivore **decomposer** **herbivore** **predator.** (1)
- (g) Root hairs help plants by increasing a root's
length **mass** **strength** **surface area.** (1)
- (h) At night, when it is dark, a plant
neither photosynthesises nor respire
photosynthesises but does not respire
photosynthesises and respire
respire but does not photosynthesise. (1)

1. Underline the word or phrase which best completes each of the following sentences.

(a) The nucleus of a cell contains

cellulose chlorophyll genes a vacuole.

(b) In order to germinate, a broad bean seed requires

fertiliser soil sunlight water.

(c) Human cells produce

carbon dioxide glucose oxygen starch.

(d) Smoking cigarettes reduces the exchange of gases in the

alveoli (air sacs) arteries veins windpipe (trachea).

(e) Things which pass from the mother to the fetus across the placenta include

carbon dioxide insoluble food oxygen red blood cells.

(f) To prevent constipation, a healthy diet should contain

animal fat fibre protein sugar.

(g) An example of a carbohydrate is

glucose olive oil vitamin C water.

(h) A structure found in plant cells but not in animal cells is

a cell surface membrane a cellulose wall
a nucleus cytoplasm.

1. Underline the word or phrase which best completes each of the following sentences.

(a) Egg cells in a mammal are made in the

intestines **liver** **ovaries** **uterus.**

(b) The part of a cell which controls which substances enter and leave is the

cell surface membrane **cell wall** **cytoplasm** **nucleus.**

(c) Scurvy is caused by the lack of a

carbohydrate **mineral** **protein** **vitamin.**

(d) The fetus is protected from damage by the

amniotic fluid **oviduct** **placenta** **ribcage.**

(e) The vertebrates which live on land but which reproduce in water are

amphibians **birds** **fish** **reptiles.**

(f) The substance made in photosynthesis which stores energy is

carbon dioxide **glucose** **oxygen** **water.**

(g) In a food chain the type of organism which feeds on a producer is a

decomposer **primary consumer**

secondary consumer **virus.**

(h) Fibre is important in a human diet because it

contains vitamins **is digested to glucose**

makes us feel full **prevents constipation.**

1. Underline the word or phrase which best completes each of the following sentences.

(a) Cell walls made of cellulose are found in all

animal cells bacteria plant and animal cells plant cells.

(b) During photosynthesis, chloroplasts make

carbon dioxide chlorophyll oxygen water.

(c) Human eggs (ova) are the largest cells in the body. This is because they

are joined to a placenta can swim
contain a lot of cytoplasm have tails.

(d) When testing a food for starch we use

alcohol Benedict's reagent
copper sulphate iodine solution.

(e) In the gut, starch is digested to produce

amino acids fat glucose water.

(f) We can lift an object because of the contraction of the

biceps muscle elbow ligaments skeleton.

(g) In the alveoli (air sacs) the substance which moves into the blood capillaries is

carbon dioxide glucose oxygen water.

1. Underline the number, phrase, word or unit which best completes each of the following sentences.

(a) The one on this list which is a force is

density **mass** **pressure** **weight.**

(b) The mass of a 20p coin is nearest to

0.5 g **5 g** **50 g** **500 g.**

(c) A car travelling at a steady speed of 20 m/s will travel 1 km in

5 s **20 s** **50 s** **20 000 s.**

(d) The one on this list which does **not** travel as a wave is

light **radio** **sound** **wind.**

(e) A unit of pressure is

g/cm³ **N** **N/cm²** **N/cm³.**

(f) A unit of frequency is

cm/s **decibel** **Hz** **second.**

(g) A spring of unstretched length 10 cm has a load of 1 N hung from it. Its length increases by 2 cm. If a load of 3 N is hung from it and the spring stretches evenly, the length will increase to

6 cm **16 cm** **22 cm** **36 cm.**

(h) Changing the frequency of a sound wave changes the

amplitude **loudness** **pitch** **speed**

of the sound.

1. **Underline** the word, phrase or number which best completes each of the following sentences.

- (a) Compared with sound, light travels
at the same speed more slowly much faster slightly faster. (1)
- (b) We can see the Moon at night because
it gives off light by itself
light from the Sun is reflected from it
light travels from our eye and is reflected back
the Apollo 11 astronauts left a reflector on the Moon. (1)
- (c) When a beam of red light travels from air into water, it bends. This is called
diffraction dispersion reflection refraction. (1)
- (d) A block weighs 10 N. When it stands with one face on a table, the pressure on the table is 5 N/cm^2 . The block is now turned onto another face which has half the area of the first face. The pressure is
 0.5 N/cm^2 2.5 N/cm^2 5 N/cm^2 10 N/cm^2 . (1)
- (e) A guitar string makes a sound when it is plucked because it
is kept tight is long is made of steel vibrates. (1)
- (f) The Earth orbits the Sun because
the Sun gives off so much light
there is a force of gravity between them
the Earth is solid
the Sun and Earth are so far apart. (1)

(g) A car's engine pushes a car forward with a force of 1000 N. Friction acts in the opposite direction with a force of 400 N. The car will

move at a steady speed

not move

slow down

speed up.

(h) A rainbow is caused by

light from our eyes being refracted by the raindrops

sunlight being dispersed by passing through raindrops

sunlight being reflected from the sky

sunlight being reflected from the surface of raindrops.

(i) A unit of energy is the

ampere

joule

newton

ohm.

(9)

1. Underline the number, phrase, word or symbol which best completes each of the following sentences.

(a) The circuit symbol for an ammeter is



(b) Two similar lamps are connected in series with a cell. The first lamp is
brighter than the second lamp

dimmer than the second lamp

not lit

the same brightness as the second lamp.

(c) When they are brought close together, a north-seeking and a south-seeking pole will

attract

have no effect

make a stronger pole

repel.

(d) A compass is a magnet, able to turn freely in the Earth's magnetic field. The end of the compass which points to the north is the

negative end

north-seeking pole

positive end

south-seeking pole.

(e) The most likely mass of a car is nearest

10 kg

100 kg

1000 kg

10 000 kg.

(f) On Earth, the force of gravity on one kilogram is nearest

1 N

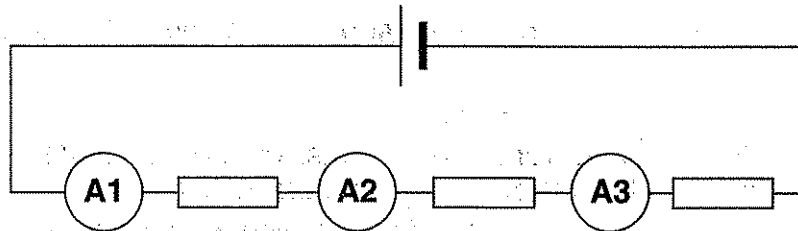
10 N

100 N

1000 N.

- (h) A compass needle will attract iron filings because **it has an electric charge** **it is a magnet**
of the force of friction **of the force of gravity.**

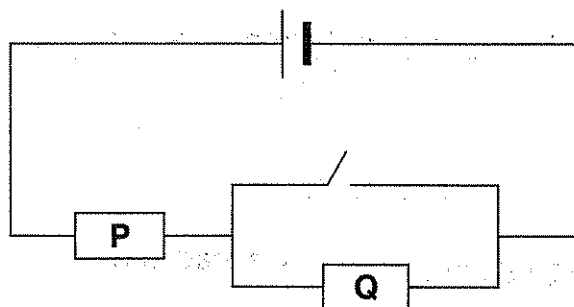
- (i) In the circuit below ammeter **A1** reads **4A**.



Underline the correct readings of ammeters **2** and **3**.

A2	A3
0	0
2	1
4	4
8	12

- (j)



When the switch in this circuit is closed, the current through the two resistors will

- decrease in P and decrease in Q** **increase in P and decrease in Q**
increase in P and increase in Q **stay the same in both P and Q.**

(10)

1. Underline the number, word, phrase or unit which best completes each sentence.

(a) The one of the following which is transparent, is

milk paper water wood.

(b) A block of wood has a mass of 40 grams and a density of 0.8 g/cm^3 . Its volume in cm^3 is

0.02 32 50 500.

(c) A mass of 2 kg is hung from a force meter on the planet Mars. The force meter reads 8 N. The pull of gravity on Mars in N/kg is

2 4 8 10.

(d) The thickness of this page in mm is about

0.01 0.1 1 10.

(e) The correct unit for energy is the

ampere deg C joule newton.

(f) Pluto is called a planet because it

can only be seen using a telescope is further away than the Moon

orbits the Earth

orbits the Sun.

(g) An echo is caused by the

reflection of light

reflection of sound

refraction of light

refraction of sound.

- (f) A brick of weight 30 N stands on one face of area 10 cm². The pressure it exerts on the ground is

0.33 N/cm² 3 N/cm² 40 N/cm² 300 N/cm².

- (g) We can see the planet Venus in the night sky because

it glows

it is very close to the sun

light from our eye reflects off it

light from the Sun reflects off it into our eye.

- (h) Light changes direction when it hits the boundary between air and glass at an angle. This is called

diffraction dispersion reflection refraction.

- (i) A pianist plays a note. She then plays a note of greater frequency. The second note she plays will sound

higher louder lower softer.

- (j) Improvements in radio communication round the earth have been made possible by

artificial satellites in earth orbit

bouncing radio signals off the moon

putting radio stations on the top of high mountains

reducing the thickness of the ozone layer.

(10)

1. Underline the word, phrase or number which best completes each of the following sentences.

(a) When placed close to each other, the north-seeking poles of two bar magnets will

attract divide line up repel.

(b) Two lamps are connected in series with a cell. The current in the first lamp is

half that in the second lamp the same as that in the second lamp

twice that in the second lamp zero.

(c) A lamp is connected in series with a cell and a LDR. The lamp can be made brighter by

making the LDR colder putting the LDR in the dark

putting the LDR in the light turning the LDR round in the circuit.

(d) To measure the speed of a car, it is necessary to know

the distance the car travels and the time taken to travel that distance

the force on the car and the distance it travels

the mass of the car and the distance it travels

the time taken and the weight of the car.

(e) A toy car is pushed along the floor with a force of 5 N. When it is moving, a frictional force of 5 N acts on the car in the opposite direction. The car will

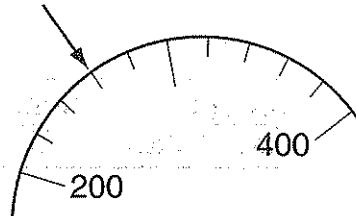
move at a constant speed slow down

speed up stop moving.

- (e) The one on the following list which is always a force of attraction is
friction gravity magnetism radiation.
- (f) The electrical component on this list which you would expect to have the lowest resistance is
an ammeter a buzzer a lamp a motor.
- (g) In LED the letter D stands for
dependent diode double durable.
- (h) The electrical component on this list which changes electrical energy into the largest number of different forms is a
fuse LED motor resistor.
- (i) Most energy resources on the Earth originate from
coal gas oil the Sun.
- (j) The time taken for a moving car to come to a halt is affected **least** by the
amount of friction between the car and the road
speed of the car
temperature of the air
mass of the car.

1. Underline the number, phrase or word which best completes each of the following sentences.

(a) The reading shown by the pointer on the scale is



230 260 320 470.

(b) We have seasons on Earth because

the Earth rotates on its axis

the Earth's axis is tilted

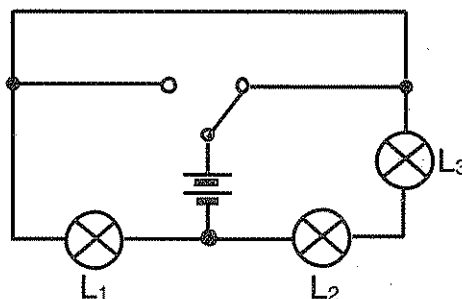
the Sun gives out different amounts of heat and light during the year

there is a gravitational force of attraction between the Moon and the Earth.

(c) A block of aluminium of volume 24 cm^3 has a mass of 60 g. Its density in g/cm^3 is

0.4 2.5 84 1 440.

(d) In the following circuit, in which all the lamps are similar,



all the lamps are lit

all the lamps are off

only lamp L_1 is lit.

only lamps L_2 and L_3 are lit.

- (g) A simple electromagnet can be made by winding coils of insulated copper wire around a soft iron core and passing an electric current through the wire. The strength of the electromagnet can be increased by

increasing the current through the wire

replacing the soft iron core with one made from copper

using a longer soft iron core

using bare, rather than insulated, copper wire.

- (h) A and B are two identical, highly-polished wooden balls at rest on a level, low-friction surface. Ball A is hit gently towards ball B, which remains stationary until it is touched by ball A. After colliding with ball B, which of the following **cannot** happen to ball A?

change direction

slow down

speed up

stop

- (i) A man jumps from an aeroplane at a height of 3000 m. When he has fallen to a height of 1000 m he opens his parachute and he then starts to fall much more slowly. This is because the parachute

decreases his average density

decreases his mass

decreases the force with which gravity acts on him

increases the amount of air resistance.

1. Underline the number, word, phrase or unit which best completes each of the following sentences.

(a) The planet in our Solar System which is closest to the Sun is

Earth Jupiter Mars Venus.

(b) Electrical energy can be changed into kinetic energy by a

buzzer lamp resistor switch.

(c) The frequency of sound is measured in

cm/s decibels hertz seconds.

(d) A block of material of mass 100 g, has a density of 5 g/cm^3 . A block of the same material, but with twice the volume of the first one, will have a mass of

50 g 100 g 200 g 1000 g.

(e) The magnetic field lines around a bar magnet

go from the north-seeking to the south-seeking pole

go from the south-seeking to the north-seeking pole

go in straight lines

have no set pattern.

(f) On Earth, gravity attracts each kg with a force of 10 N. On the Moon, it attracts each kg with $\frac{1}{6}$ of this force. An astronaut of mass 60 kg on the Earth will have a mass on the Moon of


10 kg 60 kg 100 N 600 N.

(h) If a block of material has a mass of 60 g and a volume of 120 cm³, it will have a density of
0.5 g/cm³ 2 g/cm³ 24 g/cm³ 7200 g/cm³. (1)

(i) When a gas is heated, the individual molecules
contract expand move closer together move faster. (1)

(j) A tennis ball, which is hit hard upwards, might reach a height of
1.0 m 10 m 100 m 1000 m.

(k) A compass needle swings round and settles in a definite direction when it is placed on the laboratory bench. This is because it
has positive and negative charges is affected by atmospheric pressure
is attracted by the pole-star is in a magnetic field. (1)

(l) 
This drawing is the electrical symbol for a
fuse push switch reed switch resistor. (1)

1. Underline the number, phrase or word which best completes each of the following sentences.

(a) All visible stars

absorb light give off light orbit planets reflect light. (1)

(b) In an electric circuit, the greatest current flows

anticlockwise clockwise
through a high resistance through a low resistance. (1)

(c) The strength of an electromagnet will definitely be increased by

reducing the current
reducing the diameter of the wire
reducing the number of turns on the coil
reducing the resistance of the wire. (1)

(d) If a body has kinetic energy, then the body is

cold hot moving uphill. (1)

(e) The time taken to travel 1 km by a cyclist moving at a steady 30 km/hr is

$\frac{1}{30}$ min $\frac{1}{2}$ min 2 min 30 min. (1)

(f) A violin string is plucked to produce a note. After it has finished vibrating, it is plucked again, this time more strongly than before. Compared with the first note, the second note will be

higher in pitch identical louder lower in pitch. (1)

(g) A force of 1 N, applied to the end of a spring, causes it to stretch by 10 cm. When the force is removed, the spring returns to its original length. A similar spring, twice as long as the first, has a force of 0.5 N applied to its end. The stretch will be

5 cm 10 cm 20 cm unpredictable. (1)

(g) If the apple in part (f) fell 2 m on the Moon, the time taken for it to land would now be

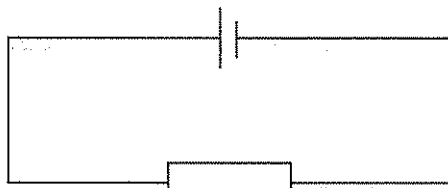
longer because there is less pull of gravity

longer because there is more air resistance

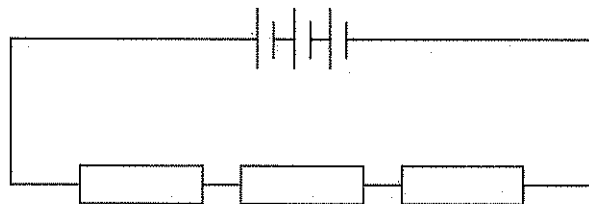
longer because there is no pull of gravity

shorter because there is no air resistance.

(h)



circuit A



circuit B

All the cells and all the resistors in both circuits are the same. The current in circuit **A** is 0.6 A. The current in circuit **B** will be

zero 0.2 A 0.6 A 1.8 A.

(i) If **one** of the cells in circuit **B** is turned round, the current in circuit **B** will be

zero 0.2 A 0.6 A 1.8 A.

(9)

1. Underline the word, phrase or number which best completes each of the following sentences.

(a) The one of the following which is a star, is

Mars the Milky Way the Moon the Sun.

(b) The pull of gravity on Jupiter is 25 N/kg. A mass of 4 kg on Jupiter will have a weight of

4 kg 40 N 100 kg 100 N.

(c) When the brakes of a bicycle are used to slow it down, kinetic energy is converted into

friction energy light energy potential energy thermal energy.

(d) A car took 10 minutes to travel 8 km. Its speed was

0.8 km/h 48 km/h 80 km/h 4800 km/h.

(e) An echo occurs when sound waves

break the sound barrier enter a denser material

reflect from a surface travel through a vacuum.

(f) An apple falls off a tree and drops 2 m to the ground. The time that it takes to reach the ground

is less than 0.01 s is about 0.6 s

is more than 10 s depends on the mass of the apple.