

P6 LEAVING NATIONAL EXAMINATIONS OF SET AND THEIR MARKING GUIDES

FROM 2012 TO 2023

COMPILED BY HUNGURIMANA Dieudonné



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Top 10 study tips

1. Have all your materials ready before you begin studying: pencils, pens, papers, calculators if necessary etc.
2. Be positive. Make sure your brain holds on to the information you are learning by reminding yourself how important it is to remember the work and get the marks.
3. Take a walk outside. A change of scenery will stimulate your learning. You'll be surprised at how much more you take in after being outside in the fresh air.
4. Break up your learning sections into manageable parts. Trying to learn too much at one time will only result in a tired, unfocused and anxious brain.
5. Keep your study sessions short but effective and reward yourself with short, constructive breaks.
6. Teach your concepts to anyone who will listen. It might feel strange at first, but it is definitely worth reading your revision notes aloud.
7. Your brain learns well with colours and pictures. Try to use them whenever you can.
8. Be confident with the learning areas you know well and focus your brain energy on the sections that you find more difficult to take in.
9. Repetition is the key to retaining information you have to learn. Keep going – don't give up!
10. Sleeping at least 8 hours every night, eating properly and drinking plenty of water are all important things you need to do for your brain. Studying for exams is like strenuous exercise, so you must be physically prepared.

“If you can’t explain it simply, you don’t understand it well enough”.

Albert Einstein

On the day of the exam ...

1. Make sure you have all the necessary stationery for your exam, i.e. pens, pencils, eraser, protractor, compass, calculator (with new batteries). Make sure you bring your ID document and examination admission letter.
2. Arrive on time, at least one hour before the start of the exam.
3. Go to the toilet before entering the exam room. You don't want to waste valuable time going to the toilet during the exam.
4. Use the 10 minutes reading time to read the instructions carefully.
5. This helps to 'open' the information in your brain. Start with the question you think is the easiest to get the flow going.
6. Break the questions down to make sure you understand what is being asked. If you don't answer the question properly you won't get any marks for it. Look for the key words in the question to know how to answer it.

Try all the questions. Each question has some easy marks in it so make sure that you do all the questions in the exam.

7. Never panic, even if the question seems difficult at first. It will be linked with something you have covered. Find the connection.
8. Manage your time properly. Don't waste time on questions you are unsure of. Move on and come back if time allows.
9. Check weighting – how many marks have been allocated for your answer? Do not give more or less information than is required.
10. Write big and bold and clearly. You will get more marks if the marker can read your answer clearly.

Source: Alfie Bouwer, Sivalingam Chetty et al; 2014, ***Mind the gap, Life sciences study guide grade 12***, Department of basic education, Pretoria, South Africa.

Note: Through the questions herein are fully answered, it is highly recommended that you first read and understand the question, make your trials and then compare with what is given in the solution. It is also advisable that you read through the book several times before the final examinations.

I am certain that if a student can answer all these questions in this document with ease, he/she should be able to pass with a distinction in the P6 leaving national examinations of SET.

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“Everyone is a genius. But if you judge a fish by its ability to climb a tree, it will spend its whole life believing that it is stupid.”
Albert Einstein

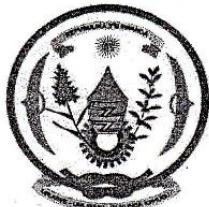
“Never say you have failed until you have reached your last attempt, and never say it's your last attempt until you have succeeded.”

“There are no secrets to success. It's all about preparing, hard work and learning from failure.”

Science and Elementary Technology PSET

07 Nov. 2012 9.00 am -11.00a.m

REPUBLIC OF RWANDA



RWANDA EDUCATION BOARD (REB)
P.O.BOX 3817 KIGALI

Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
<input type="text"/>						

Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2012

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

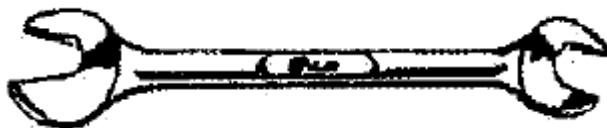
Marks: /100

INSTRUCTIONS:

- In the space provided, write your index number and names in full as written on your registration form.
- Answer all questions.
- Write your answer in the space provided on your question paper.
- Read each question carefully before answering it.
- Do not make unnecessary changes.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) The tool below is used in mechanics.



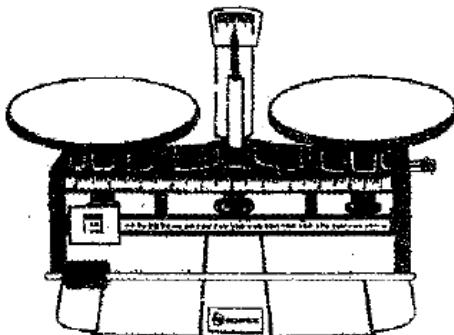
a) What is the name of the tool? (1 mark)
b) This tool is used to (1 mark)
2) Running water on hillsides causes soil erosion. How can this soil erosion be prevented? (2 marks)

.....
.....

3) Mention two dangers that stagnant water can cause. (2 marks)

.....
.....

4) Below is an instrument used in everyday life.



(a) What is this instrument called?

..... (1 mark)

(b) Which of the following quantities is this instrument used to measure: weight, mass, force of a body?

..... (1 mark)

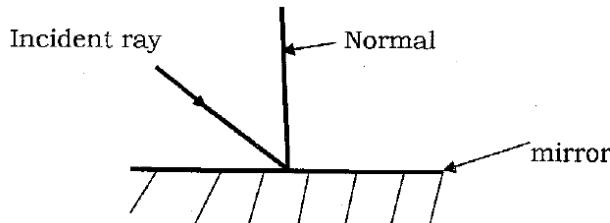
5) Given the following objects: wooden door, sunglasses, glass in a window. Which of them is?

(a) Opaque? (1 mark)
(b) Transparent? (1 mark)
(c) Translucent? (1 mark)

6) The mass of a stone is 200g and its volume is 80cm³. Calculate the density of the stone. **(2 marks)**

.....
.....

7) The diagram below shows reflection of light from a plane mirror.



Complete the diagram and show: reflected ray, angle of incidence and angle of reflection. **(3 marks)**

8) Water exists in three states. What are the common names of these states? **(3 marks)**

(a)
(b)
(c)

9) Mention two ways of making water from a lake safe for drinking. **(2 marks)**

(a)
(b)

10) If you have meat you want to keep for more days without getting spoilt, which two ways can you use to preserve it? **(2 marks)**

(a)
(b)

11) Which type of energy helps us to see objects and to read books?

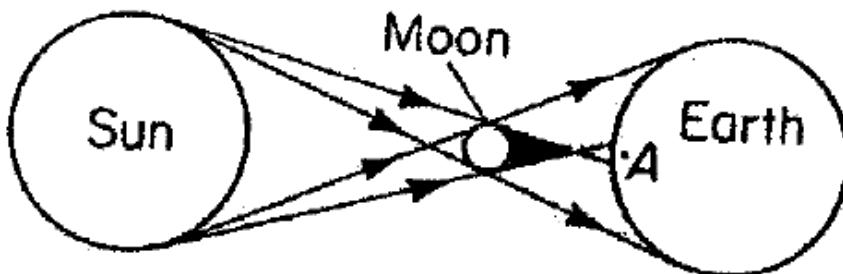
(2 marks)

.....
12) (a) By which heat transfer method does heat from the sun reach the earth? **(1 mark)**

.....
(b) To boil water in a saucepan, heat is applied underneath the saucepan. Which heat transfer method does the heat reach the water at the top in the saucepan? **(1 mark)**

.....

13) Below is an eclipse of the sun by the moon. The tip of the umbra has failed to reach the earth's surface. What is the name of the type of eclipse? **(2 marks)**



14) An echo is a property of sound called? **(2 marks)**

.....

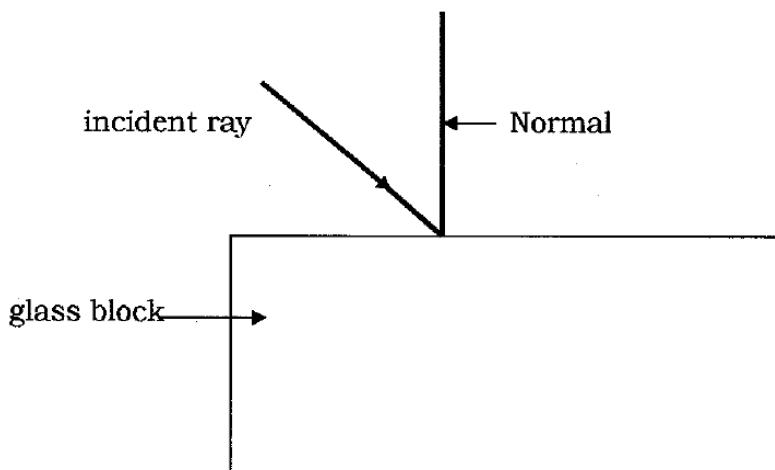
15) Modern technology has made it possible to store sound. Give two ways of storing sound. **(2 marks)**

.....

.....

16) Below is a glass block and a light ray entering it. Complete the diagram to show the path of the ray through the glass block. Label the emergent ray.

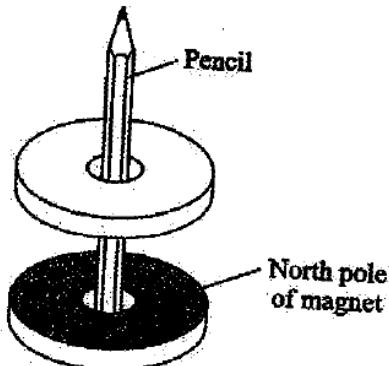
(3 marks)



17) A magnet strongly picks copper. Is this statement correct? **(2 marks)**

.....

18) The diagram below shows two circular magnets.



Complete the following sentence:

The top magnet floats above the bottom magnet because the two
..... poles are facing each other and similar poles

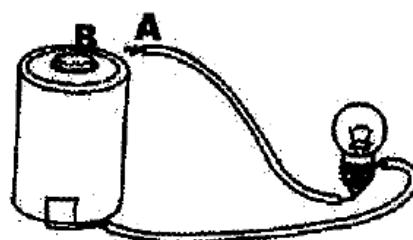
(2 marks)

19) Suppose you dissolve salt in water, how can you get back the salt?

(3 marks)

.....
.....
.....

20) The diagram below shows an electric lamp, connecting wires and a battery



(a) Can the lamp indicated in the diagram give light?

..... **(1 mark)**

(b) Explain your answer.

..... **(2 marks)**

(c) What could you observe when the end of wire A is connected to the terminal B?

..... (1 mark)

(d) What will happen if there are two lamps in the circuit and one battery?

..... (1 mark)

21) Which different methods can you use to cook potatoes? (2 marks)

.....
.....

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

22) (a) A lung disease caused by bacteria is called (1 mark)

.....
....

(b) In what way is the housefly dangerous to people? (1 mark)

.....

(c) State two diseases spread by houseflies to people. (2 marks)

.....
.....

23) (a) The difference between HIV and AIDS is that (1 mark)

.....

(b) The main method through which AIDS can be spread is (1 mark)

.....

(c) In what way is the spread of AIDS similar to that of Gonorrhea?

(1 mark)

.....

24) (a) Three characteristics of birds are:

.....
.....
.....

(b) In what way are birds similar to reptiles? (1 mark)

.....

(c) A cow is called a ruminant because (1 mark)

.....
(d) (i) Which category of animals carry their young ones in a pouch?

(1 mark)

.....
(ii) Give one example of animals that carry their young ones in a pouch.

(1 mark)

.....
25) (a) The part of the flower that receives pollen grains is **(1 mark)**

.....
(b)(i) The female part of a flower is called **(1 mark)**

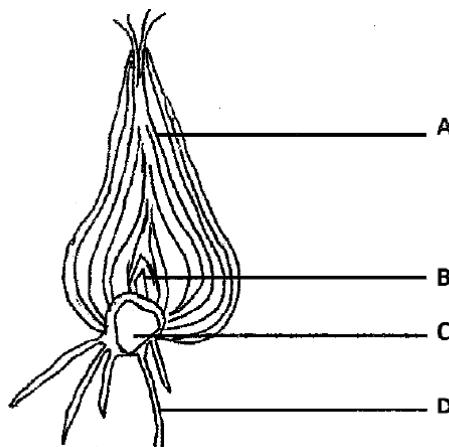
.....
(ii) The parts that make up female part of a flower are: **(3 marks)**

.....
26) (a) Fill in the table below with three differences between insect and wind pollinated flowers. **(3 marks)**

Insect pollinated flowers	Wind pollinated flowers

.....
(b) Fertilization is **(1 mark)**

.....
27) The diagram below is of an onion



Name the parts A, B, C and D.

(4 marks)

A

B

C

D

28) (a) How is a stem useful to plants?

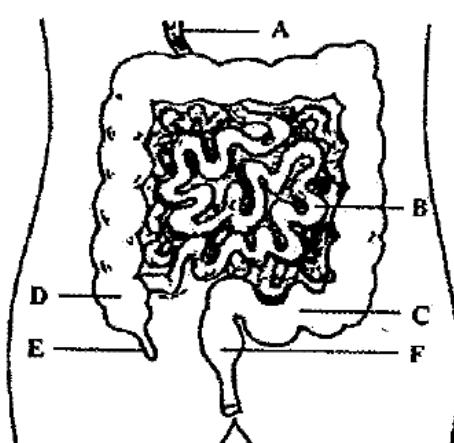
(2 marks)

.....
.....

(b) Besides carrying out photosynthesis, how else are leaves useful to plants?

(1 mark)

.....
.....
29) The diagram below shows the lower part of the alimentary canal. Use it to answer the questions that follow.



(a) Name the parts marked A, B, C, D, E and F.

(3 marks)

A

B

C

D

E

F

(b) What important process takes place in part C?

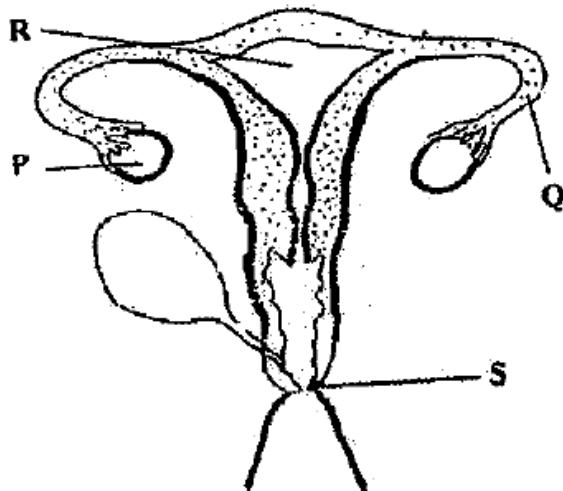
(1 mark)

.....

(c) How is part F useful?

(1 mark)

30) The diagram below shows the female reproductive organs.



(a) Name the parts marked P, Q, R and S.

(4 marks)

P

Q

R

S

(b) What is the function of part P?

(1 mark)

.....

(c) Name at least one process that takes place in part R.

(1 mark)

.....

(d) What type of fertilization takes place in people?

(1 mark)

.....

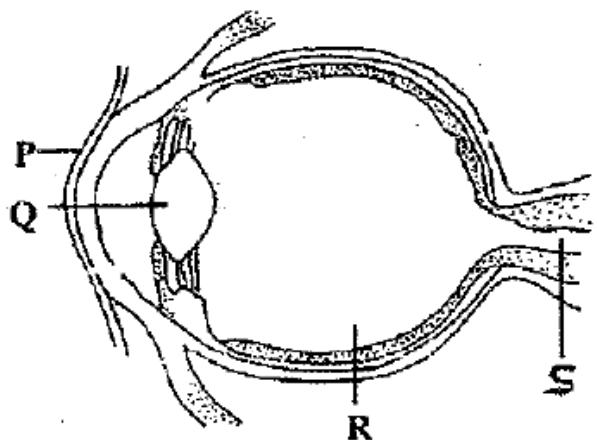
(e) How is such fertilization different from that in amphibians (frogs,

toads, etc) ?

(1 mark)

.....

31) The diagram below shows a human eye.



(a) Name the parts labelled P, Q, R and S.

P

Q

R

S

(b) What is the function (use) of part Q? **(1 mark)**

.....

(c) Which part of the eye is sensitive to light rays and so send messages to the brain? **(1 mark)**

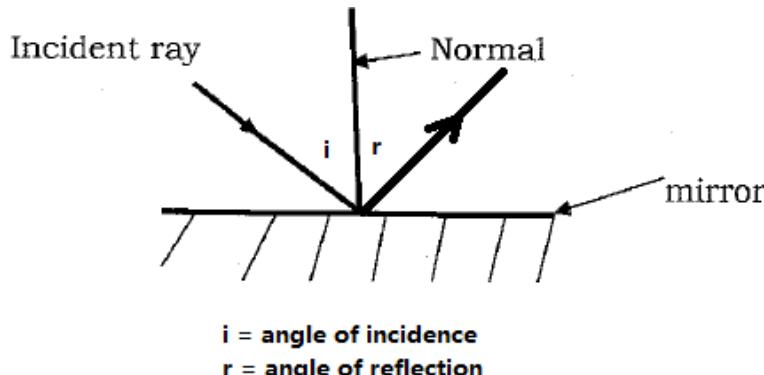
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-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2012

- 1) (a) Spanner
(b) Loosening and tightening bolts and nuts
- 2) Terracing
Contour ploughing
Afforestation
Re-afforestation
- 3) Breeding places for mosquitoes
Bad smell
- 4) (a) Balance
(b) Mass
- 5) (a) Opaque- Wooden door
(b) Glass in window
(c) Sun glasses
- 6) The mass of the stone = 200g
The volume of the stone = 80cm³
Density of the stone = $\frac{m}{V} = \frac{200g}{80cm^3} = 2.5g/cm^3$

7)



- 8) Solid / Liquid / Gas
- 9) Boiling; Distillation
- 10) Freezing; Smoking; salting
- 11) Light energy
- 12) (a) Radiation

(b) Convection

13) Solar eclipse

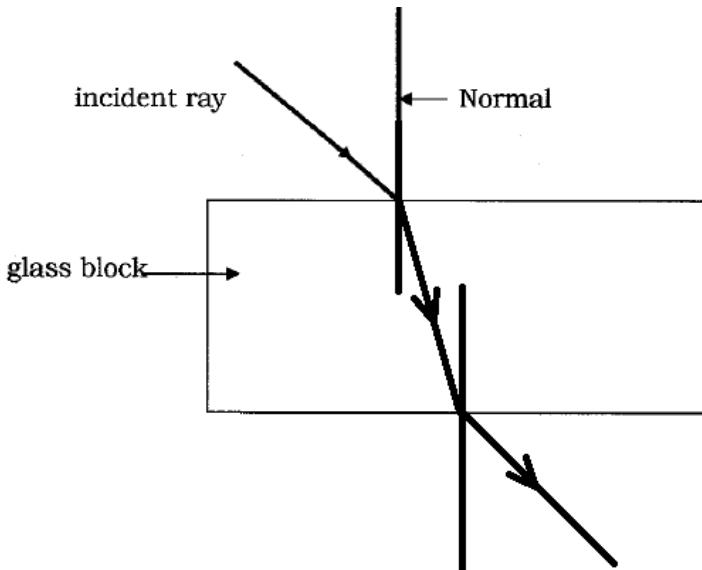
14) Refraction

15) Using compact discs

Using video cassette discs

Using flashes

16)



17) False

18) Like, repel

19) By heating the solution

20) (a) No

(b) Because the wire does not touch the positive terminal

(c) The bulb will produce light

(d) They will produce dim/little light.

21) Boiling

Shallow frying

Deep frying

22) a) Tuberculosis

(b) It spreads diseases

(c) Trachoma; dysentery; cholera

23) (a) HIV is a virus that causes AIDS while AIDS is the disease caused by HIV.

- (b) Having sexual intercourse with an infected person
- (c) Both are sexually transmitted diseases

24) (a) Having Wings; warm blooded; feeding using beaks; breathing through the lungs; lay eggs (oviparous)

- (b) Both use the lungs for breathing
- (c) It chews cud
- (d)(i) Marsupials

(ii) Kangaroo, Koala bears

25) (a) Stigma

- (b)(i) Pistil
- (ii) Ovary, Stigma, Style, Ovules

26) (a)

Insect Pollinated Flower	Wind Pollinated Flower
Have brightly coloured petals	Have dull colours
Produce nectar	Do not produce nectar
Have scent	Have no scent
Produce a small number of pollen grains	Produce a small number of pollen grains
The flower has a large size	The flower has a small size

(b) The fusion of both the male and female gametes to produce a zygote.

27) A: Storage fleshy leaves; B: Central bud/Terminal bud; C: Bulb stem; D: Fibrous roots

28) (a) To store food for the plants; transporting water and mineral salts from roots to the leaves; transporting food from leaves to storage organs such as leaves.

(b) For breathing

29) (a) A: Duodenum; B: Small intestines ;C: Large intestines; D: Colon; E: Appendix; F: Rectum

- (b) Absorption of water
- (c) Stores feces temporarily

30) (a) P: ovary; Q: Fallopian tube/Oviduct; R: Uterus/Womb; S: Cervix

- (b) Produce an egg
- (c) Implantation and where the embryo and fetus develop
- (d) Internal fertilization
- (e) Frogs (amphibians) undergo external fertilization.

31) Conduction, convection

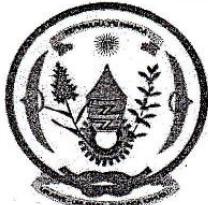
- (a) P: Conjunctiva; Q: Lens; R: Vitreous humor; S: Optic nerve
- (b) Allows bending of light rays to form images on the retina
- (c) The part of the eye that is sensitive to light is the retina. The part of the eye that sends messages to the brain is the optic nerve.

Science and Elementary Technology

PSET

23/10/2013 9.00 am -11.00a.m

REPUBLIC OF RWANDA



RWANDA EDUCATION BOARD (REB)
P.O.BOX 3817 KIGALI

Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2013

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) This paper consists of 12 pages and 37 questions. Before starting, check if all pages and all questions are there and are arranged in ascending order.
- 3) Write your complete index number and names in full (as written on your registration form) in the spaces provided above.
- 4) This paper has two sections: A and B.
- 5) Questions in both sections are compulsory and must be answered as instructed.
- 6) Read each question carefully before answering it.
- 7) Answer the questions in the space provided on this question paper.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

32) The tool below is used in mechanics.



This tool is called and it is used to or the bolts. **(2 marks)**

33) Why does a piece of wood float on water while an iron nail sinks to the bottom of water? **(2 marks)**

.....
.....

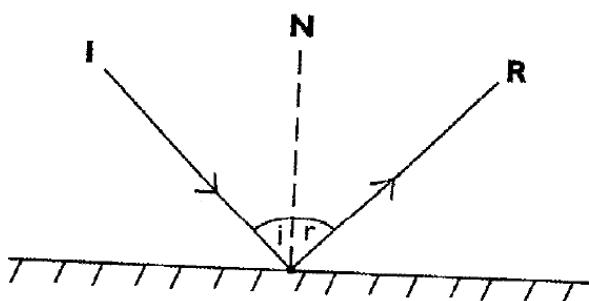
34) Two ways through which lake water is made dirty are:

b) **(1 mark)**
c) **(1 mark)**

35) The moon light at night comes from **(2 marks)**

.....
.....

36) The figure below shows a ray of light being reflected by a plane mirror. Which is



(a) The incident ray?

..... **(1 mark)**

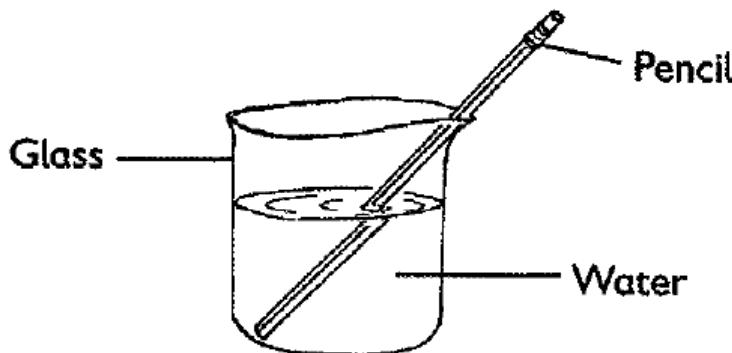
(b) The angle of reflection?

..... **(1 mark)**

37) Use the figure in question 5 above and state the relation between angle i and r . **(2 marks)**

.....
.....
.....

38) A pencil is put in water. See figure below. The pencil appears bent.

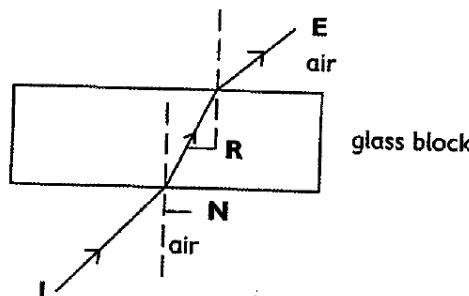


(a) How does the pencil appear when it is removed from water? **(1 mark)**

.....
.....
.....

39) Light rays bend or change direction when they move from water into the air. This bending of light rays as they move from water to the air is called of light. The speed of light in is not the same as the speed of light in the air. **(2 marks)**

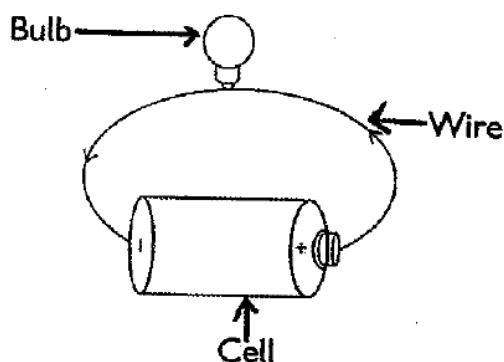
40) The figure below shows a ray of light travelling from the air through a glass block and then to the air.



The name of

(a) ray **R** is **(1 mark)**
(b) ray **E** is **(1 mark)**

41) The figure below shows a complete electric circuit.



What is the use of:

a) the cell? (1 mark)

b) the wire? (1 mark)

42) Mention any two dangers electricity can cause in homes. (2 marks)

.....
.....

43) In a house which has electricity you can find switches and sockets fixed on walls.

What is the use of:

(a) Switches

.....
..... (1 mark)

(b) Sockets

.....
..... (1 mark)

44) Mention any two ways to avoid dangers caused by electricity. (2 marks)

.....
.....

45) Electricity produced by running water is called (1 mark)

.....

46) The type of energy that enables us to hear is called

.....; this energy is

produced by bodies. (2 marks)

47) Does sound travel through

(a) liquids? (1 mark)

(b) vacuum? **(1 mark)**

48) Two reasons that explain why musical sounds and other noises from far distance sources heard more at night than during the day time are:

(2 marks)

.....
.....
.....

49) Water can exist in three states. How can you change water from a liquid to a gas state? **(2 marks)**

.....

50) Read the following statements and write TRUE if it is correct and FALSE if it is wrong.

(a) A liquid has a fixed volume **(1 mark)**

(b) A gas has a fixed volume **(1 mark)**

51) Two methods of heat transfer from a hot body to a cold place are

(2 marks)

.....
.....

52) (a) The method of heat transfer from the sun to the earth is: **(1 mark)**

.....

(b) When it is a cold day or cold night you feel cold because your body is losing heat. The heat transfer method by which your body loses heat is called **(1 mark)**

.....

53) We cook food in saucepans which are made of aluminium metal because

.....
.....

(2 marks)

54) Heat from the sun is useful and we do not pay money when we use it.

Why is it good to dry maize in sunshine before storing them?

(2 marks)

55) (a) Complete this equation: MASS = DENSITY X **(1 mark)**
(b) The unit of density is **(1 mark)**

56) The mass of a solid is 270g and its volume is 300cm³. Calculate its density.

.....
..... **(2 marks)**

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

57) (a) A germ is **(1 mark)**

.....
..... **(2 marks)**

.....
.....
.....
(c) Three ways in which germs can be controlled are: **(3 marks)**

.....
.....
.....

58) (a) Give any three uses of food to living organisms. **(3 marks)**

.....
.....
.....

(b)(i) A balanced diet is **(1 mark)**

.....
.....
.....
.....

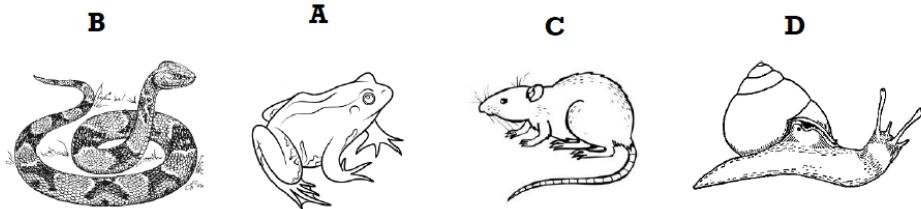
59) (a) Two functions (uses) of proteins to living organisms are: **(2 marks)**

.....
.....

(b) Why should children have more proteins than adults? **(1 mark)**

.....

60) The diagram below shows different animals.



(a) In which ways are animals A, B and C similar? **(1 mark)**

.....

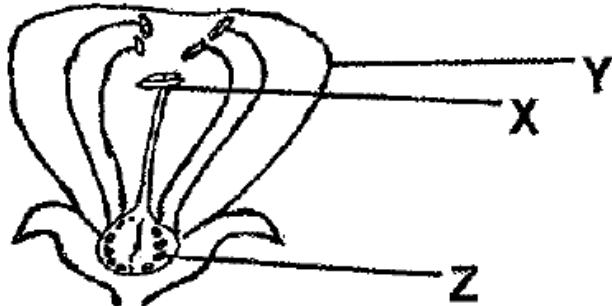
(b) How is reproduction of animal C different from that of other animals?

..... (1 mark)

(c) Animal A belongs to a class of animals called **(1 mark)**

(d) Animal D protects itself against enemies by **(1 mark)**

61) The diagram below is of a flower.



(a) The part labelled X is called **(1 mark)**

(b) The use of the part labelled Y to the flower is **(1 mark)**

(a) $W_1 = t_1 - t_1^1 = t_1^1 - t_1^1 - 11 - 17 - 1$ $S_1 = S_1^1$ (utilization 2) $(1 - 1)$

62) (a) What are Sexually Transmitted Diseases (STDs)? **(1 mark)**

(b) Give any three examples of STDs. **(3 marks)**

(c) One way in which STDs can be controlled is **(1 mark)**

63) (a) What is the shape of a kidney? **(1 mark)**

(b) Two main functions of a kidney are: **(2 marks)**

64) Three ways in which health problems can be solved without the use of drugs are: **(3 marks)**

65) (a) The ear is used for **(1 mark)**

(b) Three main parts of the ear are: **(3 marks)**

(c) The part of the ear that is likely to be damaged if one uses a sharp object to clean it is **(1 mark)**

66) A man has the food named below to feed his family. Use the list to answer the questions below.

Mangoes, Beans, Rice, Potatoes, Green dodo.

(a) His wife has anaemia. Which food from the list would you advise her to eat? **(1 mark)**

(b) Give reasons for your answer above. **(1 mark)**

(c) This man's child has kwashiorkor and advised to eat beans. Why?

(1 mark)

.....
67) Vertebrate animals have bony skeleton within their bodies. Give any two uses of skeleton.

(2 marks)

.....
.....
68) (a) Give at least two secondary sexual characteristics that are similar to both boys and girls.

(2 marks)

.....
.....
(b) Give at least two different secondary sexual characteristics for:

(i) Boys **(2 marks)**

.....
.....
(ii) Girls **(2 marks)**

-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2013

- 1) Pliers, to loosen or tighten the bolts
- 2) Because a piece of dry wood is less dense than water while iron nails are denser than water.
- 3) Throwing left over foods in water, bathing in a lake, releasing waste products into the lake...
- 4) The sun
- 5) The incident ray is angle i ; the angle of reflection is the angle r .
- 6) Angles i and r are equal. (Angle of reflection is equal to the angle of incidence)
- 7) a. It appears straight
b. of refraction
- 8) refraction, air
- 9) a. R-Emergent
b. E-Reflected emergent ray
- 10) a. Cell-stores chemical energy and converts it to electrical energy
b. Wire- transmits electricity/electrons
- 11) It can cause fire, shocks, death and damages electrical appliances.
- 12) a. Switches-To break and complete the circuit.
b. Sockets- Outlets for tapping/getting electricity
- 13) Don't touch live electric wires, don't touch switches with wet hands
- 14) Hydro-electricity
- 15) Sound energy, vibrating bodies
- 16) a. Liquids-Yes/True
b. Vacuum-No
- 17) At night there is quietness and no objects that distract sound movement unlike daytime.

18) Boiling/heating

19) a. True
b. False

20) Conduction, convection

21) a. Radiation
b. Conduction

22) Aluminium saucepans are good conductors of heat.

23) For future use

24) a. Volume
b. g/cm³

$$25) D = \frac{m}{V} = \frac{270g}{300cm^3} = 0.9g/cm^3$$

26) a. A germ is a small living organism which causes diseases.
b. Bacteria, virus, protozoa, amoeba
c. Avoiding eating contaminated food, drink boiled water, wash hands before eating food.

27) a. To repair worn out tissues, to strengthen bones and teeth, to give energy, to fight diseases.
b. (i) A balanced diet is a meal that contains all food values in their right amounts.
(ii) Water, carbohydrates, mineral salts, fats, vitamins, proteins.

28) a. To repair worn out tissues, for body growth.
b. For body growth

29) a. They are all vertebrates (animals with a backbone).
b. Animal C has viviparous reproduction.
c. Amphibians
d. Entering the shell

30) a. Stigma
b. Attract pollinators
c. Seeds

31) a. These are diseases spread through sexual intercourse with an infected person.
b. AIDS, Syphilis, gonorrhea

- c. Abstain from sex

32) a. Bean shaped

- b. To filter blood, regulate the amount of water and mineral salts in the body.

33) Drinking boiled water, washing hands before eating, eating a balanced diet, covering food.

34) a. For hearing or for body balance

- b. Outer ear, middle ear, inner ear
- c. Middle ear/ ear drum or tympanic membrane

35) a. Green dodo

- b. Green dodo contains iron.
- c. To repair worn out body tissues.

36) For body movement, to give the body shape, to protect internal organs such as heart and brain, to store minerals such as calcium and phosphorus.

37) a. Sweat glands become active, pubic hair around private organs starts growing, increase in size and weight

- b. (i) Beards develop, voice breaks and deepens
- (ii) Waist line and heaps develop, voice breaks and softens, menstruation starts.

Science and Elementary Technology

PSET

22/10/2014 09AM – 11AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2014

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) This paper consists of 12 pages and 41 questions. Before starting, check if all pages and all questions are there and are arranged in ascending order.
- 3) This paper has two sections: **A** and **B**.
- 4) Questions in both sections are compulsory and must be answered as instructed.
- 5) Read each question carefully before answering it.
- 6) Answer the questions in the space provided on this question paper.
- 7) You must use **a blue or black** pen and a **pencil** for drawing.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) (a) Why is a hammer good for fixing together pieces of wood with a nail?

(1 mark)

.....
....

(b) Why is a saw suitable tool for cutting wood? **(1 mark)**

.....

2) (a) One way of protecting the environment from rain water is: **(1 mark)**

.....

(b) One danger of stagnant water is: **(1 mark)**

.....

3) Complete the following sentences:

(a) An object which does not allow all the light to pass through it is called

(1 mark)

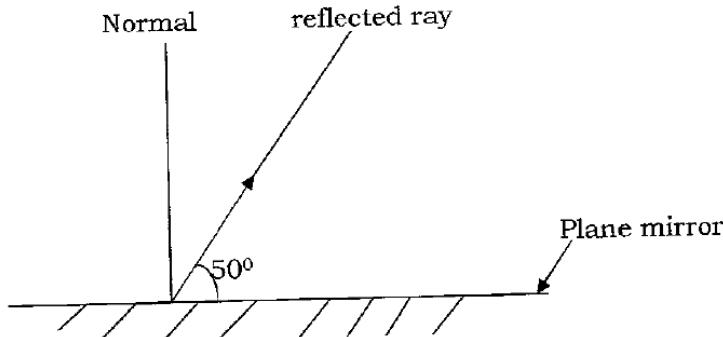
.....

(b) The main source of natural light on earth is. **(1 mark)**

.....

4) The diagram below shows a reflected ray of light and a plane mirror.

(2 marks)



(a) Draw an incident ray on the diagram.

(b) **(1 mark)**

(c) What is the size of the angle of reflection?

..... **(1 mark)**

5) (a) When is the lunar eclipse formed?

(1 mark)

.....

(b) An umbra shadow is the **(1 mark)**

.....

6) (a) Give an example of a solid fuel.

..... **(1 mark)**

(b) Explain why although petrol is a useful liquid fuel it can be dangerous if it is carelessly handled.

.....

..... **(1 mark)**

7) A dry cell stores chemical energy. In a torch, the chemical energy from the cell is converted into other energies. Name these energies. **(2 marks)**

.....

.....

8) (a) Write one difference between a metal and a non-metal. **(1 mark)**

.....

(b) Why are electric wires made of copper?

..... **(1 mark)**

9) Air of the atmosphere is composed of many gases.

(a) Which of these gases supports burning of wood?

..... **(1 mark)**

(b) Which gas puts off fire from burning wood?

..... **(1 mark)**

10) (a) A stone sinks in water because

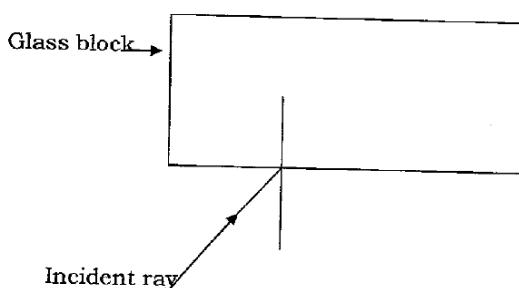
..... **(1 mark)**

(b) What is the meaning of relative density of a substance?

..... **(1 mark)**

11) Complete the diagram below which shows a glass block and incident ray.

(1 mark)



12) (a) By which method does heat travel through a liquid?
..... (1 mark)

(b) Which liquid is a good conductor of heat?
..... (1 mark)

13) Draw a simple electric circuit composed of one dry cell, connecting wires, a switch and a lamp bulb. (1 mark)

14) In the distribution of electricity from the main source, the following materials are used: poles, transformers and cables (electric wires).
(a) What is the use of a transformer?
..... (1 mark)

(b) Why are cables (electric wires) used?
..... (1 mark)

15) Give two uses of electricity.
..... (1 mark)
..... (1 mark)

16) It is bad to touch a switch with wet hands because
..... (1 mark)

17) Give an example to prove that:
(a) Sound travels through water.
..... (1 mark)

(b) Sound does not travel through very hard surfaces
..... (1 mark)

18) (a) Can sound be stored?
..... (1 mark)

(b) Give an example to support your answer in (a) above.
..... (1 mark)

19) Name the source of clean water in your home.

..... (1 mark)
..... (1 mark)

20) Name the source of clean water in your home.

..... (1 mark)

21) (a) Lake water is not clean for drinking because

..... (1 mark)

(b) How is lake water made clean for drinking?

..... (1 mark)

(c) Name one disease caused by drinking dirty water (i.e. lake water, stagnant water, etc)

..... (1 mark)

22) Draw a diagram to represent water cycle. Start from lake water.

23) (a) What is a magnet?

..... (1 mark)

(b) Why is one end of a bar magnet called a north pole and the other a south pole?

..... (1 mark)

24) The diagram below represents a bar magnet. Draw magnetic lines of force around it. (1 mark)



25) Give two uses of a magnet.

..... (1 mark)

..... (1 mark)

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

26) Three respiratory diseases are

..... (1 mark)

..... (1 mark)

..... (1 mark)

27) (a) Give any three uses of food to man.

..... (1 mark)
..... (1 mark)
..... (1 mark)

(b) The best food for a baby of less than eight month is

..... (1 mark)

28) (a) The two types of germination are

..... (1 mark)
..... (1 mark)

(b) For a bean to germinate, it must be mature and healthy. Mention the other necessary conditions for the seed to germinate.

..... (1 mark)
..... (1 mark)

29) The table below shows foodstuffs prepared by different families. Study it and answer questions that follow.

Family A	Family B	Family C	Family D
Bananas	Cassava	Potatoes	Millet
Meat	Beans	Posho	Fish
Beans	Posho	Cassava	Meat
Yams	Yams	Yams	Mangoes

(a) Which family has proteins but lacks fats?

..... (1 mark)

(b) What food nutrients are lacking in family A?

..... (1 mark)

(c) Which family has a balanced diet?

..... (1 mark)

30) One reason which shows that animals and plants depend on each other is that (1 mark)

31) Give the differences between the life history of a cockroach and that of a housefly.

..... (1 mark)

..... (1 mark)

32) Give the difference between the way man and insects breathe.

..... (1 mark)

..... (1 mark)

33) Study the table below and answer the questions that follow.

A	B
Tilapia	Rat
Frog	Goat
Crocodile	Lion
Hen	Whale

(a) What is the similarity in the way the animals in list A reproduce?

..... (1 mark)

(b) The animals in list B belong to a group of animals called

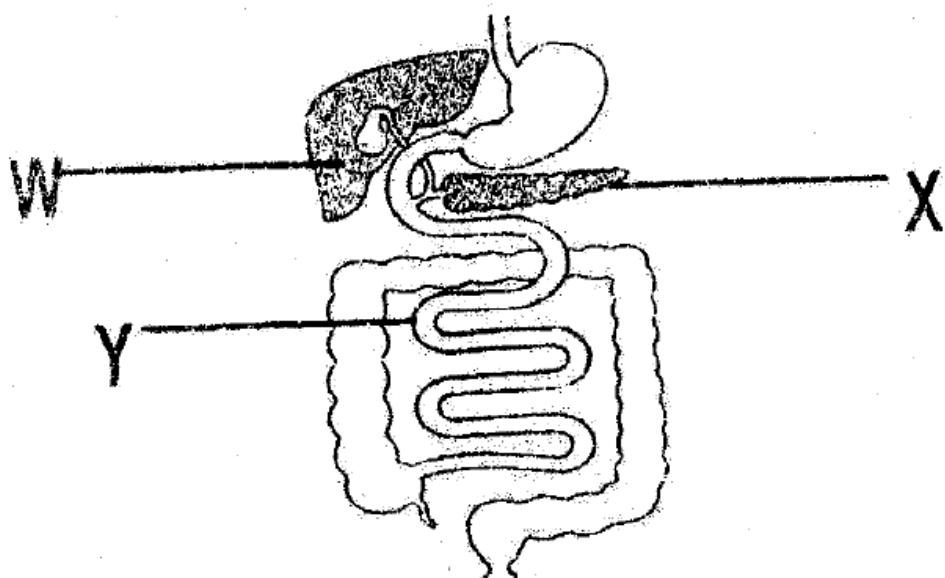
..... (1 mark)

(c) In what way is the tilapia in list A similar to the whale in list B?

..... (1 mark)

34) The diagram below shows part of the alimentary canal of a human being.

Use it to answer the following questions.



(a) Name the parts:

X: (1 mark)

Y: (1 mark)

W: (1 mark)

(b) A process that takes place in the part marked Y is.

..... (1 mark)

(c) One use of the part X is

X: (1 mark)

35) Give two ways of preventing and controlling each of the following diseases without using drugs.

(a) AIDS

(i) (1 mark)

(ii) (1 mark)

(b) Malaria

(i) (1 mark)

(ii) (1 mark)

36) (a) An earthworm is called an invertebrate because

..... (1 mark)

(b) One main use of a human skeleton is:

..... (1 mark)

37) (a) All arteries carry oxygenated blood except

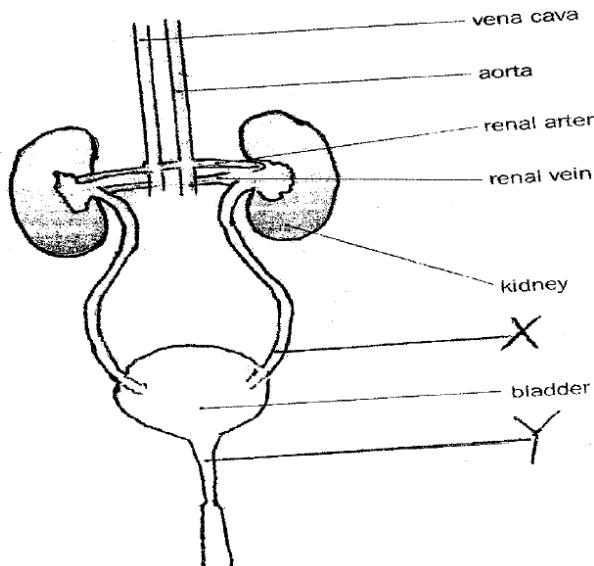
..... (1 mark)

(b) All veins carry deoxygenated blood except

..... (1 mark)

38) The structures on the leaf of a plant that help in the process of transportation are: (1 mark)

39) The diagram below is a human urinary system.



(a) Name the parts labelled X and Y.

X: (1 mark)

Y: (1 mark)

(b) The bladder is used for:

..... (1 mark)

(c) What needs to be done in order to have a good urinary system?

..... (1 mark)

40) (a) STDS in full is:

..... (2 marks)

(b) Two examples of STDs are:

(i) (1 mark)

(ii) (1 mark)

41) Knowledge of science and technology helps human beings in the

following ways:

a) (1 mark)

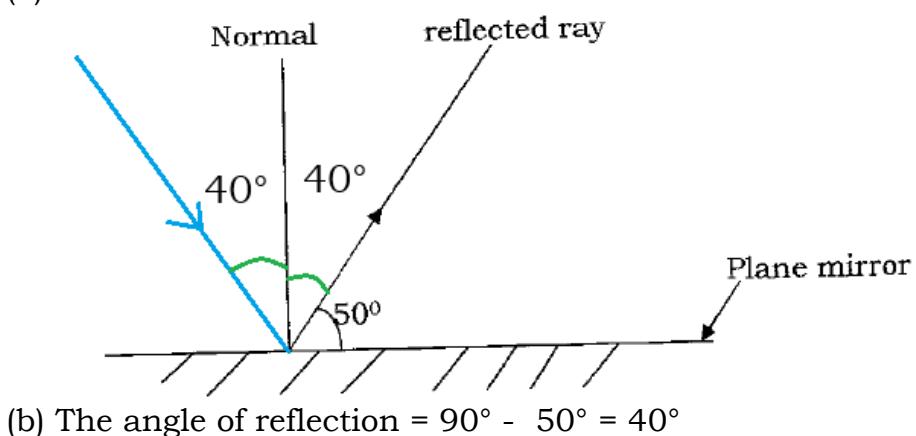
b) (1 mark)

c) (1 mark)

-END-

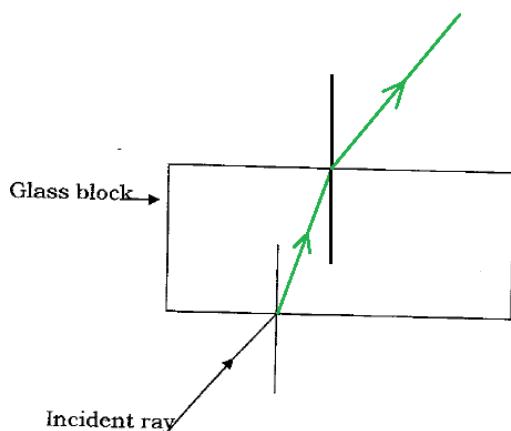
MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2014

- 1) (a) A hammer is used because it is hard and metallic.
(b) A saw is used because it is sharp.
- 2) (a) Through digging drainages.
(b) It breeds mosquitoes
- 3) (a) Translucent objects
(b) The sun
- 4) (a)



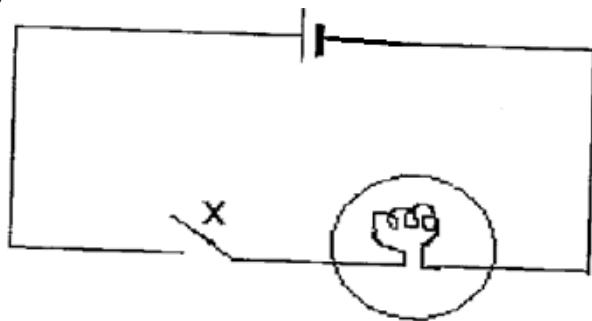
- 5) (a) A lunar eclipse is caused by Earth passing between the Sun and the Moon and throwing its shadow on the moon.
(b) Umbra is the darkest part of the shadow.
- 6) (a) Charcoal
(b) It is highly flammable.
- 7) Electrical energy, heat energy, light energy
- 8) (a) A metal is a good conductor of heat and electricity whereas a non-metal is not.
(b) Copper is a good conductor of electricity.
- 9) (a) Oxygen
(b) Carbon dioxide
- 10) (a) Its density is higher than that of water.
(b) Relative density is the ratio of mass to that of equal volume of water.

11)



12) (a) Convection
(b) Mercury

13)



14) (a) To regulate current
(b) Cables are good conductors of electricity

15) For lighting, for ironing, for watching TV, for running electric machines

16) You may be electrocuted

17) (a) When a stone is dropped in water, sound is heard (concentric waves)
(b) When in a hall and noise is made, sound reaches the wall and bounces back in form of an echo.

18) (a) Yes
(b) Sound can be stored on CDs, flash disks, cassettes

19) Less effort is used to carry heavy weights, it overcomes friction.

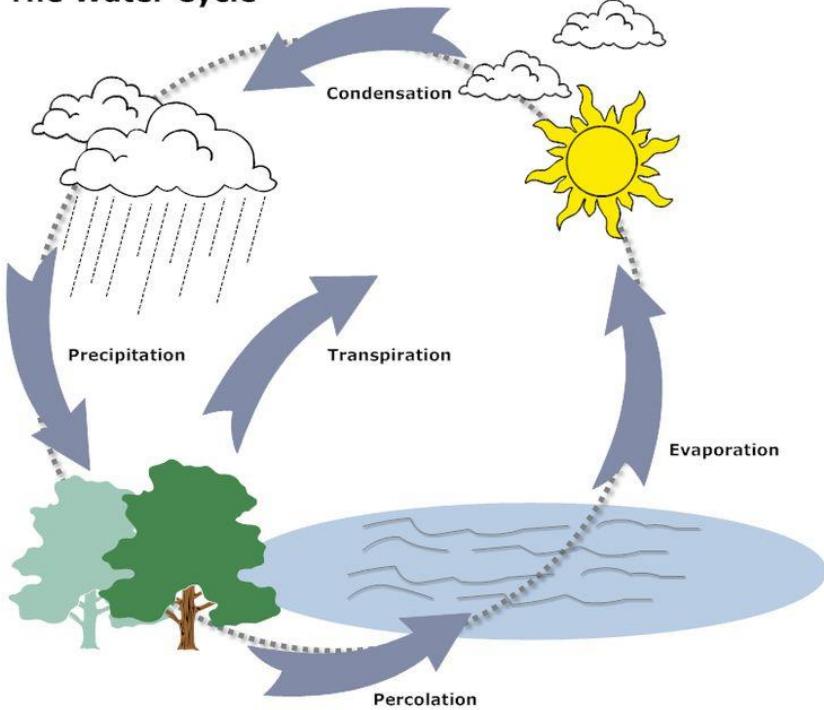
20) A tap

21) (a) It contains chemicals and germs

(b) Through boiling the water
(c) Bilharzia, ascariasis, amoebiasis

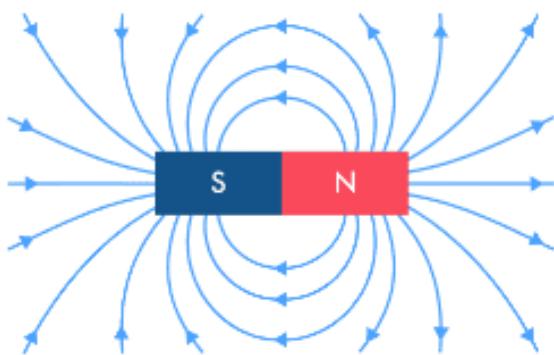
22)

The Water Cycle



23) (a) A magnet is a piece of metal that attracts other magnetic substances.
(b) It follows the principle of a freely suspended magnet with points north and south directions.

24)



25) In lifting heavy magnetic materials, used in industries to separate iron filings from other materials, used in radios

26) Bronchitis, emphysema, lung cancer, pneumonia

27) (a) For protection against diseases, for body building, for production of energy.
(b) Breast milk

28) (a) Hypogea germination and epigeal germination
(b) Presence of oxygen, water and warmth

29) (a) Family B
(b) Vitamins and minerals
(c) Family D

30) Plants breathe out oxygen which animals breathe in and animals breathe out carbon dioxide which plants breathe in and is used in the process of photosynthesis.

31) A cockroach undergoes incomplete metamorphosis (3 stages) but a housefly undergoes a complete metamorphosis (4 stages).

32) Man breathes through the lungs while an insect breathes through spiracles.

33) (a) They all lay eggs
(b) Mammals
(c) They have fish like appearance; they have hydrodynamic shape

34) (a) X: Pancreas; Y: Small intestines/Ileum; W: liver
(b) Absorption of water
(c) It makes insulin which decreases blood glucose level; it makes pancreatic juice which is used in digestion.

35) (a) Abstaining from sex; avoid sharing sharp cutting items
(b) Sleeping under treated mosquito nets; removing bushes around homes; using insecticides to kill Anopheles mosquitoes.

36) (a) It does not have a backbone
(b) To give the body shape

37) (a) Pulmonary artery
(b) Pulmonary vein

38) Veins

39) (a) X: ureter; Y: urethra
(b) Stores urine before it leaves the body

(c) Drink enough water, doing physical exercises.

40) (a) STDs: Sexually Transmitted Diseases
(b) Syphilis, gonorrhoea, AIDS, chlamydia

41) (a) Helps to know our body parts and how they function.
(b) Helps to know about different diseases, how they are prevented and how to cure them.
(c) Helps to understand different events
(d) Increases our scientific curiosity.

Science and Elementary
Technology
PSET

04/11/2015 09AM – 11AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2015

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) ***This paper consists of 12 pages and 37 questions. Before starting, check if all pages and all questions are there and are arranged in ascending order.***
- 3) This paper has **two sections: A and B**.
- 4) Questions in both sections are compulsory and must be answered as instructed.
- 5) Read each question carefully before answering it.
- 6) Answer the questions in the space provided on this question paper.
- 7) You must use **a blue or black** pen and a **pencil** for drawing.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) Name any one:

(a) Carpentry tool: **(1 mark)**

(b) Agricultural tool: **(1 mark)**

2) (a) Mention one danger of stagnant water **(1 mark)**
.....

(b) What is the use of terraces **(1 mark)**
.....

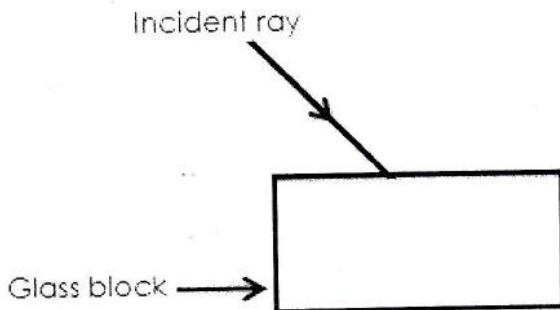
3) (a) What is a simple machine? **(1 mark)**
.....

(b) Name one type of a simple machine. **(1 mark)**
.....

4) (a) Give one source of artificial light. **(1 mark)**
.....

(b) Which type of surface reflects light. **(1 mark)**
.....

5) The diagram below shows a ray of light travelling from air through a glass prism. **(2 marks)**



Complete the path of the light through the glass block.

6) When is the solar eclipse formed? **(1 mark)**
.....

7) Give two types of substances that burn. **(2 marks)**
.....
.....

8) (a) Which form of energy helps us to see objects?
(b) A force of 50N pulls a box 3m in the direction of the force. Calculate the work done. **(2 marks)**

.....

.....

9) Water can exist in three states. At room temperature, water is in liquid state. Write two other states of water. **(2 marks)**

.....

.....

...

10) Explain how water at room temperature changes to ice. **(1 mark)**

.....

.....

11) The mass of a body is 60g and its volume is 15cm³. Calculate the density of the body.

12) The table below shows densities of some materials.

Material	Densities
Copper	8,900
Water	1,000
White spirit	850

(a) Which material sinks in water? **(1 mark)**

.....

(b) Which material does not sink in water? **(1 mark)**

.....

13) Name any two sources of electricity used to operate radios in Rwanda.

(2 marks)

.....

14) Name any two materials used to distribute electricity from hydro power stations to homes, industries, schools and shops. **(2 marks)**
.....
.....

15) Mention any two electrical machines used in homes. **(2 marks)**
.....
.....

16) If a person touches a bare wire carrying electricity in a house, what is the quickest way to save this person? **(1 mark)**
.....

17) Give one way of producing sound. **(1 mark)**
.....

18) Give two ways of storing sound. **(2 marks)**
.....
.....

19) Why is distant sound heard clearly at night than during the day? **(2 marks)**
.....

20) By which method does heat from the sun reach the earth? **(1 mark)**
.....

21) Why do people wear sweaters on a cold day. **(1 mark)**
.....

22) Why are saucepans food for cooking food? **(1 mark)**
.....

23) Complete the following sentence **(2 marks)**
Like poles of magnet and unlike poles of a magnet
.....

24) Fill in the missing words in the following sentence. **(2 marks)**
When a bar magnet is freely suspended in the air, it always faces in
..... direction.

25) Write one use of a magnet. **(1 mark)**

26) Name at least two diseases associated with water pollution. **(2 marks)**

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

27) (a) What do the words HIV and AIDS stand for? **(2 marks)**

HIV:

AIDS:

(b) How can we avoid contracting HIV and AIDS. **(1 mark)**

.....

28) Write any three methods of purifying water. **(3 marks)**

.....
.....

29) Some bones in a human being are longer than others. Give three examples of such bones. **(2 marks)**

.....
.....
.....

30) (a) Give three reasons why food should be cooked. **(3 marks)**

.....
.....
.....

(b) What are final products of digestion of the following substances.

(3 marks)

(i) Starch:

.....

(ii) Proteins:

.....

(iii) Fats:

31) (a) What are fertilizers? **(1 mark)**

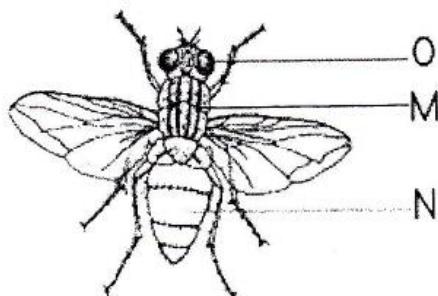
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(b) Give the main types of fertilizers. **(2 marks)**

32) Using an arrow, match items in group A with those of B below. **(3 marks)**

<u>Group A</u>	<u>Group B</u>
Heart	sensory organ
Kidney	memory
Skin	carbon dioxide
Lungs	circulation of blood
Brain	urine

33) Study the housefly below and answer the questions that follow.



(a) How many body parts does this insect have? **(1 mark)**

(b) Name the parts marked: **(2 marks)**

M:

N:

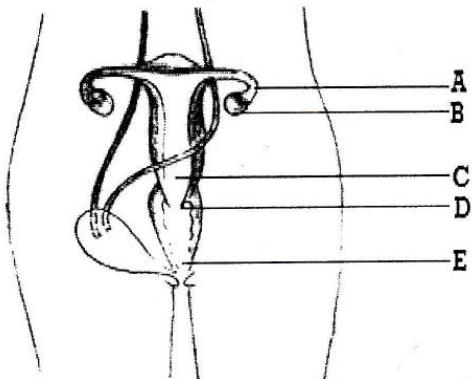
(c) What is the use of part marked O to the housefly? **(1 mark)**

(d) Where does a housefly lay its eggs? **(1 mark)**

(e) How is this housefly dangerous to us. **(1 mark)**

34) The diagram below shows the female reproductive system. **(3 marks)**

34) The diagram below shows the female reproductive system. (3 marks)



Name the parts marked A, B, C, D and E

A _____

B _____

C _____

D _____

E _____

35) The walls of a stomach produce chemical substances called gastric juice and hydrochloric. What is the use of: **(2 marks)**

(a) Gastric juice?

(b) Hydrochloric acid?

36) (a) Name two things involved in sanitation or hygiene. **(2 marks)**
.....
.....

(b) Latrines should be constructed at least 10 metres from the living house. Give two reasons for this. **(2 marks)**
.....
.....

37) (a) In the space below, draw an example of: **(4 marks)**

(i) Simple leaf

(ii) Compound leaf

(b) State any two uses of leaves to plants.

.....
.....

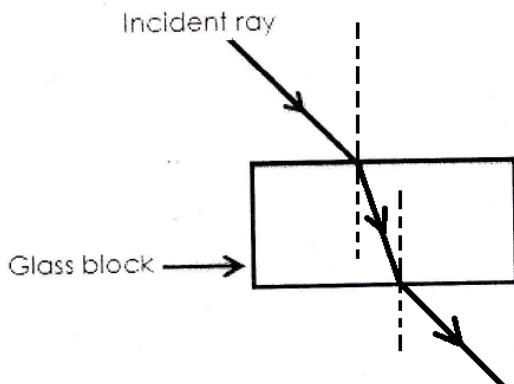
(c) State any one use of leaves to us.

.....

-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2015

- 1) (a) claw hammer, hand saw...
(b) Hoe, rake...
- 2) (a) Stagnant water provides a medium where mosquitoes which spread diseases breed.
(b) Terraces are used to control soil erosion along hilly areas.
- 3) (a) A simple machine is any tool (device) that simplifies work (makes our work easier)
(b) Pulleys, wedges, inclined planes...
- 4) (a) A candle, lamp, bulb, torch...
(b) Smooth, shining surfaces
- 5)



- 6) A solar eclipse is formed when the moon blocks the sun light from reaching the earth.
- 7) Petroleum, diesel, charcoal, peat
- 8) (a) Light energy
(b) $W = F \times d = 50N \times 3m = 159J$
- 9) Solid state and liquid state
- 10) Water at room temperature changes to ice when taken in an area which has a temperature of 0°C or lower than 0°C such as in the fridge.

11) $m = 60g$ $V = 15cm^3$

$$D = \frac{m}{V} = \frac{60g}{15cm^3} = 4g/cm^3$$

12) (a) Copper
(b) White spirit

13) Solar electricity, hydro electricity

14) Cables, electric poles

15) TV, computers, radios, phones

16) Switching off the main switch; pushing the wires off from a person using an electrical insulator.

17) By clapping
By vibrating objects
By hitting a metal

18) By using a flash disk; a memory card; hard disk on a computer

19) Due to variations in temperature; due to atmospheric pressure

20) Radiation

21) To keep their bodies warm by preventing heat loss.

22) Sauce pans are made of aluminium which is a good conductor of heat.

23) Repel, attract

24) North-South direction

25) Magnets are used in cranes to lift magnetic metals.
Magnets are used in electronic devices like radio speakers

26) Cholera, typhoid, amoebic dysentery

27) (a) HIV: Human Immunodeficiency virus; AIDS: Acquired Immuno Deficiency Virus

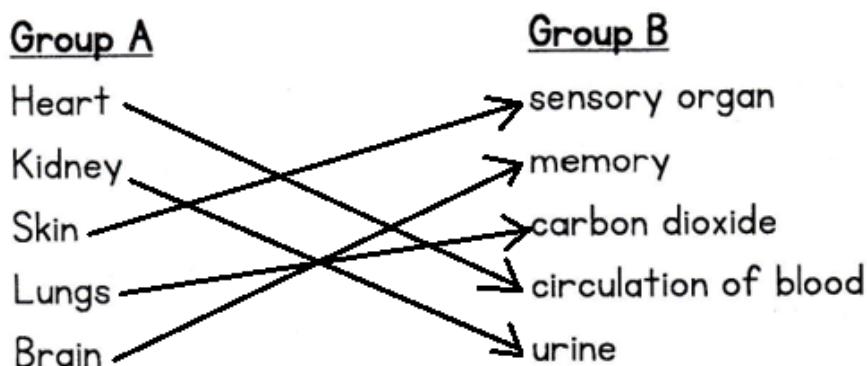
(b) By abstinence; by using condoms during sexual intercourse; avoid sharing sharp piercing instruments

28) Filtration, sedimentation, chlorination, boiling
 29) Femur, radius, humerus, tibia

30) (a) To increase their taste; to make it easier for chewing; to kill microbes
 (b) (i) Glucose
 (ii) Amino acids
 (iii) Glycerol and fatty acids

31) (a) Fertilisers are substances which boost the growth of plants
 (b) Organic fertilisers
 Factory made fertilisers

32)



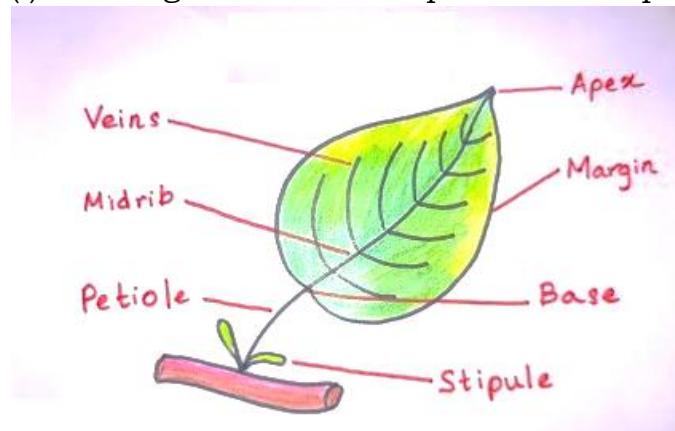
33) (a) 3 body parts
 (b) M: thorax
 N: Abdomen
 (c) For seeing
 (d) In dirty places
 (e) It spreads germs of different diseases to man.

34) A: oviduct; B: Ovary; C: Uterus; D: Cervix; E: vagina

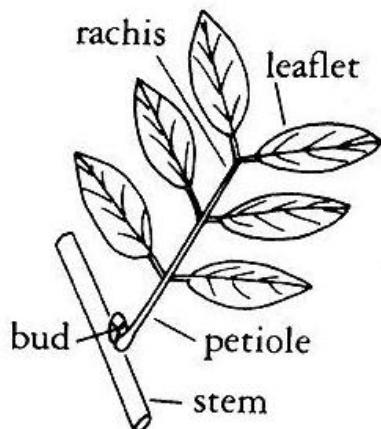
35) (a) It contains enzymes such as pepsin which help in the digestion of food.
 (b) It kills microbes swallowed with food; it activates the enzyme called pepsin.

36) (a) Sweeping the compound with a brush
 Bathing regularly using clean water and soap
 Proper disposal of wastes
 (b) To prevent bad smell from them
 To keep away flies that spread diseases

37) (a) (i) Drawing of the external parts of a simple leaf



(ii) Drawing of the external parts of a compound leaf



(b) Leaves help in photosynthesis
Leaves help in gaseous exchange
Some leaves store food for the plant
Leaves help in transpiration

(c) Some leaves are food for humans
Some leaves are used as medicines
Some leaves are used in decoration

Science and Elementary
Technology
PSET

02/11/2016 09AM – 11AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2016

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

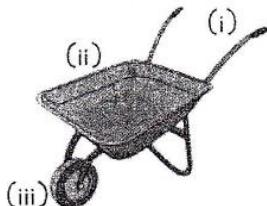
- 1) Do not open this paper until you are told to do so.
- 2) ***This paper consists of 12 pages and 37 questions. Before starting, check if all pages and all questions are there and are arranged in ascending order.***
- 3) This paper has **two sections: A and B**.
- 4) Questions in both sections are compulsory and must be answered as instructed.
- 5) Read each question carefully before answering it.
- 6) Answer the questions in the space provided on this question paper.
- 7) You must use **a blue or black** pen and a **pencil** for drawing.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) (a) What is a simple machine?

..... (1 mark)

(b) Name the parts of a simple machine below: (3 marks)



i) _____

ii) _____

iii) _____

(c) In which class of machines is the simple machine in (b) above?

(1 mark)

2) Name two ways of controlling dangers caused by stagnant water.

(2 marks)

.....
.....

3) Write two sources of artificial light. (2 marks)

.....
.....

4) Why do we wear opaque clothes?

.....

5) Which form of energy is commonly used to: (2 marks)

(a) Make cars move?

(b) Enable human beings to see?

6) State any two properties of metals. (2 marks)

.....
.....

7) State any two possible dangers of wind. (2 marks)

.....
.....

8) State any two properties of a liquid. (2 marks)

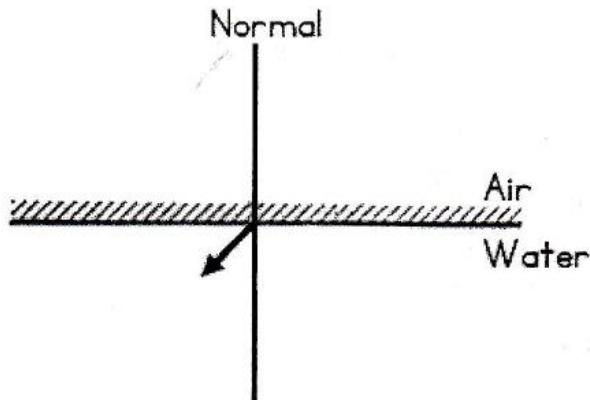
.....
.....

9) Calculate the mass of a body with density 0.9g/cm^3 and a volume of 20cm^3 . **(2 marks)**

10) Why does a stone sink into the water? **(1 mark)**

.....
.....

11) Complete the diagram below and label the incident ray, angle of incidence and angle of refraction. **(2 marks)**



12) What is the difference between conduction of heat and radiation of heat?

(2 marks)

.....
.....

13) Draw a simple electric circuit composed of two cells in series, a lamp and a switch. **(2 marks)**

14) What is the use of each of the following in an electric circuit? **(2 marks)**

(a) A dry cell:

(b) A bulb:

15) How is electricity useful in helping radio and TV communication?

(2 marks)

.....
.....

16) What is an echo? **(1 mark)**

.....
.....
.....

18) Why is pond water not good for drinking? **(1 mark)**

.....

19) How do you change water vapour to liquid water? **(1 mark)**

.....

20) What is a penumbra shadow? **(1 mark)**

.....

21) Which form of energy helps us to hear? **(1 mark)**

.....

22) Name any two substances which are attracted by a magnet. **(2 marks)**

.....

.....

23) If you have a mixture of iron filings and sand, how can you separate

them?

(2 marks)

.....
.....

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

24) (a) What is meant by communicable diseases? **(1 mark)**

.....
.....
.....

25) (a) What is meant by sexually transmitted infections (STIs)? **(1 mark)**

.....
.

(b) Name any two ways of preventing the spread of STIs. **(2 marks)**

.....
.....

26) (a) What is a balanced diet? **(1 mark)**

.....

(b) Name any two sources of vitamins. **(2 marks)**

.....
.....

(c) What is a deficiency disease? **(1 mark)**

(d) A child lacks calcium and phosphorous is likely to suffer from **(1 mark)**

27) Digestion of food starts in the (a) and ends in the (b) **(2 marks)**

28) Name the digestive juices found in the: **(4 marks)**

(a) Mouth:

(b) Stomach:

(c) Small intestines:

29) Give the names of two organs that are not part of the alimentary canal but are very important in producing juices. **(2 marks)**

.....
.....

30) (a) In human beings, what are the names of:

(i) Male sex cells: **(1 mark)**
(ii) Female sex cell: **(1 mark)**

(b) The process by which an ovary releases an ovum after 28 days in known as **(1 mark)**

31) (a) State four main components of blood. **(4 marks)**

.....
.....
.....
.....

(b) is a component of blood responsible for blood clotting. **(1 mark)**

32) (a) Which excretory product is removed by all the body excretory organs?

..... **(1 mark)**

(b) List down any four functions of the skin. **(4 marks)**

.....
.....
.....
.....

33) (a) Animals move in order to:

.....
.....

(b) Give one example of animals that: **(2 marks)**

(i) Walks:
(ii) Crawl:

34) (a) The process by which plants lose water into the atmosphere is known as **(1 mark)**

(b) State four conditions necessary for the process of photosynthesis.

(4 marks)

.....
.....
.....
.....

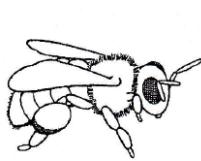
35) (a) Harmful substances that pollute water are known as
..... (1 mark)

(b) State four things that can pollute water. (4 marks)

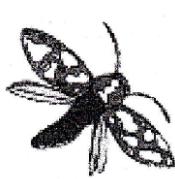
.....
.....
.....
.....

36) After fertilization has taken place in plants, the ovules grow to become
....., while the ovary becomes..... (2 marks)

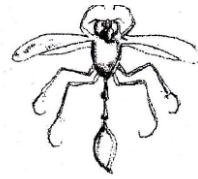
37) Classify the organisms into three groups. (3 marks)



Bee



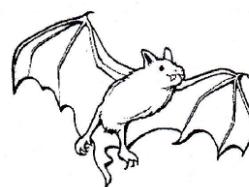
Moth



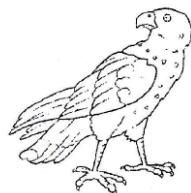
Wasp



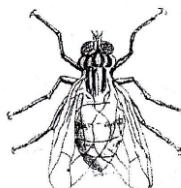
Tsetse fly



Bat



Eagle



House fly

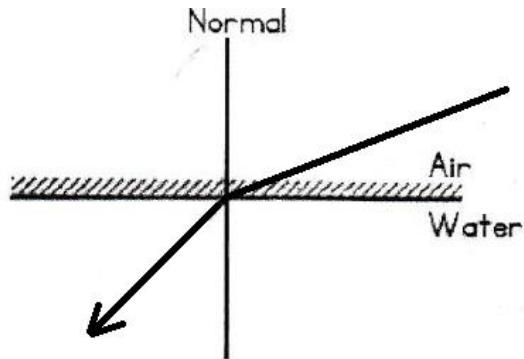
a. _____
b. _____
c. _____

-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2016

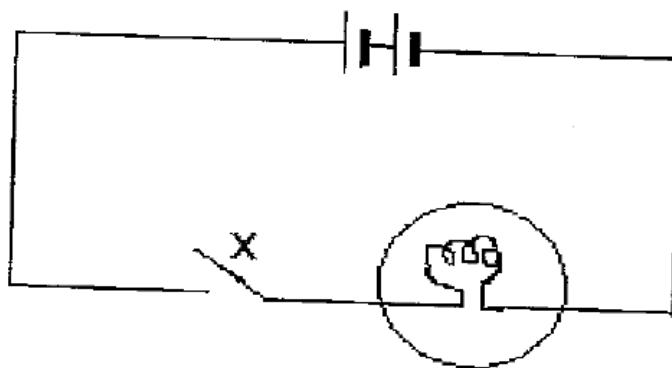
- 1) (a) It is any device that simplifies work.
(b) (i) Effort
(ii) Load
(iii) Fulcrum/pivot
(c) Second class lever
- 2) Draining water
Sleeping under treated mosquito nets
- 3) Torch, candle, electric bulbs, phones
- 4) To keep our body private
To keep our body warm
- 5) (a) Kinetic energy, electric energy
(b) Light energy
- 6) They have a high density
They are good conductors of electricity
They are hard and strong
They produce sound when hit
- 7) Too much wind destroys properties such as crops and buildings
Too much wind leads to soil erosion.
Wind spreads diseases
- 8) Liquids flow
Liquids take the shape of the container
Liquids are incompressible
Liquids have proper volume
- 9)
$$D = \frac{m}{V}$$
$$D = \frac{0.9g}{cm^3} \quad V = 20cm^3$$
$$m = D \times V = 0.9 \times 20 = 18g$$
- 10) A stone sinks in water because its density is greater than that of water.
A stone sinks because it is denser than water.

11)



12) Conduction of heat: heat is transmitted directly between two objects which are in direct contact while in radiation, the heat is transmitted between two objects which are not in direct contact.

13)



14) (a) Source of energy/generates the energy
(b) To give light

15) It helps them to operate/work

16) An echo is a reflected sound

17) Music is an organized sound while noise is disorganized sound.

18) Pond water contains some microbes that cause diseases.

19) By cooling down the water vapour below 0°C i.e. condensation

20) It is the lightest part of the shadow in an eclipse.

21) Sound energy

22) Iron, steel, cobalt

23) By using a magnet

24) (a) These are diseases which are transmitted from one person to another.
(b) Cholera, gonorrhoea, Ebola, AIDS

25) (a) These are diseases that spread through sexual contact
(b) Abstain from sex; avoid sharing sharp piercing instruments

26) (a) It is a meal that contains all food values in their correct amounts.
(b) Fruits, green vegetables
(c) It is a disease caused by lack of enough specific class of food nutrients in the body.
(d) Rickets

27) (a) Mouth
(b) Small intestines (duodenum)

28) (a) Saliva
(b) Gastric juice
(c) Intestinal juice or pancreatic juice from the pancreas

29) Liver and pancreas

30) (a) (i) Sperm
 (ii) Eggs
(b) Ovulation

31) (a) Red blood cells, white blood cells, plasma, platelets
(b) Platelets

32) (a) Carbon dioxide; excess of water
(b) It helps in temperature regulation
 It is involved in sensation/feeling
 It protects inner parts of the body
 It makes vitamin D

33) (a) Animals move in order to look for food; to look for mates; to escape from danger/predators; to look for favourable environmental conditions.
(b) Walks: man, cow, goats
 Crawl: lizards, crocodile, gecko

34) (a) Transpiration

(b) Sunlight, water, chlorophyll, carbon dioxide

35) (a) Water pollutants
(b) Sewage, dead animals, soil, chemicals

36) Ovules – seeds;
Ovary – a fruit

37) Insects, mammals and birds.

Science and Elementary
Technology
PSET

12/11/2017 09AM – 11AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
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PRIMARY LEAVING NATIONAL EXAMINATIONS, 2017

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

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SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) What is a “water level” used for?

..... **(1 mark)**

2) Name any two dangers of stagnant water.

(2 marks)

.....
.....

3) Why is a moon not regarded as a natural source of light? **(1 mark)**

.....
.....

4) What is the difference between transparent and translucent objects?

(2 marks)

.....
.....

5) Name two major sources of energy used to cook food in Rwanda.

(2 marks)

.....
.....

6) Copper wires are used in electricity because: (Give two) **(2 marks)**

.....
.....

7) Why is the air of the atmosphere important? (Give two) **(2 marks)**

.....
.....

8) Name any two properties of solids. **(2 marks)**

.....
.....

9) What is meant by the term “mass” of a body? **(1 mark)**

.....

10) A dry of firewood floats on water because: **(1 mark)**

.....

11) State any one law of reflection of light. **(1 mark)**

.....
.....

12) What is meant by the term “refraction” as applied to an oblique incident ray of light travelling from air through water? **(1 mark)**

.....

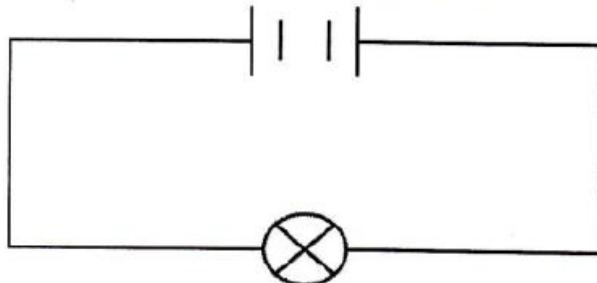
13) Mention any two methods of heat transfer. **(2 marks)**

.....

14) Below is a diagram of a simple electric circuit. Why does the lamp not light? **(2 marks)**

.....

.....



15) Draw the diagram in question (14) so that the lamp lights. **(2 marks)**

16) Mention two uses of electricity in homes. **(2 marks)**

.....

.....

17) Name two sources of sound. **(2 marks)**

.....

.....

18) Give two examples where sound is stored and is heard whenever it is needed. **(2 marks)**

.....
.....

19) Name any two types of simple machines. **(2 marks)**

.....
.....

20) State any two ways of purifying water. **(2 marks)**

.....
.....

21) How can you change the state of ice to liquid water? **(1 mark)**

.....

22) Name two types of shadows. **(2 marks)**

.....
.....

23) Heat energy is used for: (Give two) **(2 marks)**

.....
.....

24) Two properties of magnets are: **(2 marks)**

.....
.....

25) What is a “magnetic compass”? **(1 mark)**

.....

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

26) Complete the table by filling in the missing words. **(2 marks)**

An example is done for you on the first row.

Deficiency of (lack of)	Disease
Proteins	Kwashiorkor
.....	Rickets
Iodine
.....	Beriberi
Iron

27) The diagram below shows the process by which a bean seed grows into a plant.

Stage	A	B	C	D
Length(cm)	0.6cm	2.0cm	7.0cm	11.0cm
Appearance of seed/plant				

(a) Name the process shown by the above diagram.

..... **(1 mark)**

(b) Give three conditions necessary for the process above to take place.

..... **(1 mark)**

(c) How many centimetres (cm) has the bean seed grown from stage B to stage D? **(1 mark)**

28) (a) The reproductive part of a plant is the **(1 mark)**

.....

(b) Give two uses of flowers in the environment. **(2 marks)**

.....

.....

29) (a) The difference between pollination and fertilization is that: **(2 marks)**

Pollination is

.....
Fertilization is

.....
.....
(b) The two types of pollination are:

.....
.....
(c) Fill in the blanks with the appropriate words. **(2 marks)**

After fertilization, the becomes the fruit and the become the seeds.

30) Using arrows (→), match the following organs of the urinary system to their functions. **(2 marks)**

Organs	Functions
Ureter	Where urine is produced
Kidney	Brings urine from the kidney to the bladder
Urethra	Where urine is stored
Bladder	Where urine is eliminated from the body

31) (a) Name two types of blood circulation that happen in the human body.

(2 marks)

.....
.....

(b) Do all arteries carry oxygenated blood? **(1 mark)**

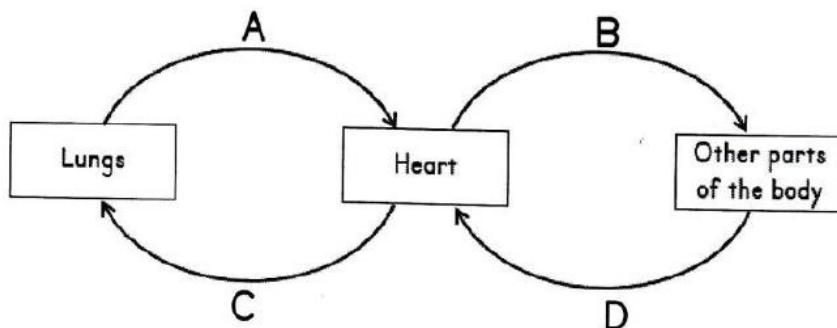
.....

(c) Explain your answer given in (b) above. **(1 mark)**

.....

(d) Give two things which happen to blood from the heart when it reaches the lungs. **(2 marks)**

32) The diagram below shows the circulatory system of a human. The arrows represent the direction of the flow of blood in the body. **(2 marks)**



Name the blood vessels A, B, C and D.

Blood vessel A is

Blood vessel B is

Blood vessel C is

Blood vessel D is

33) (a) Alveoli are small bags found in the **(1 mark)**

.....
(b) Why are we advised to breathe through the nose rather than through mouth?

..... **(1 mark)**

34) (a) What is “suffocation”? **(1 mark)**

.....
(b) How can you help a person who is suffocating? **(1 mark)**

.....
(d) Name one disease caused by smoking. **(1 mark)**

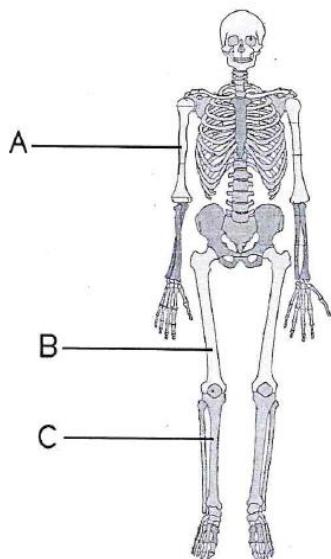
35) (a) One of the diseases we can get from eating dirty/unclean food is:

(1 mark)

.....
(b) Give two ways to keep proper food hygiene. **(2 marks)**

.....
.....

36) The diagram below shows the human skeleton



(a) Name the bones A, B and C.

(3 marks)

A: C:

B:

(b) Give one function of the human skeleton.

(1 mark)

.....

(c) Give one danger of walking or sitting in a bad position.

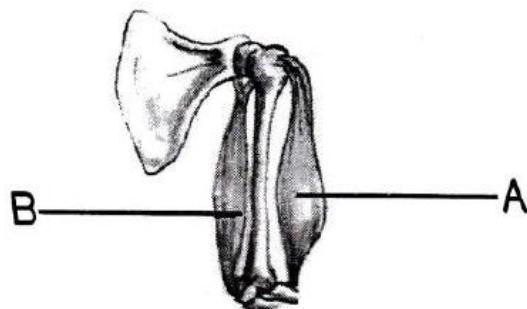
(1 mark)

.....

37) The diagram below shows the muscles of the human arm.

(a) Name the muscles A and B.

(2 marks)



A:

B:

(b) What happens:

(i) To muscle A when the arm is bent? **(1 mark)**

.....

(ii) To muscle B when the arm is bent? **(1 mark)**

.....

-END-

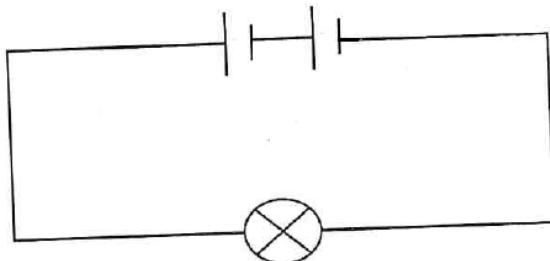
MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2017

- 1) To show whether walls of buildings are straight vertically or horizontally.
- 2) It is where vectors of different diseases such as malaria breed.
It leads to bad smell in our community.
- 3) It reflects light from the sun
The moon does not produce its own light
- 4) Transparent objects allow light to pass through clearly but translucent objects do not allow all the light to pass through.
- 5) Charcoal/wood (biomass)
Electricity/ gas (biogas)
- 6) They are good conductors of electricity
They do not corrode
- 7) It contains the oxygen used in respiration
It contains oxygen used in combustion of substances
It contains the carbon dioxide used by plants in the process of photosynthesis.
It contains the ozone layer which protects the earth from harmful radiations
- 8) Solids have proper shape
Solids have proper volume
- 9) Mass of a body refers to the amount of matter in that body.
- 10) The density of firewood is less dense than the density of water.
- 11) The angle of incidence is equal to the angle of reflection.
The incident ray, the normal and the reflected ray all lie in the same plane.
- 12) When light travels from air into water, it slows down, causing it to change direction slightly. This change of direction is called refraction.
When light enters a more dense substance, it 'bends' more towards the normal line.
- 13) Conduction, convection , radiation

14) The cells are wrongly connected.

Poor connection

15)



16) Helps to provide light

Provides energy for operating home electric devices like radios, TV...

Used for ironing

17) Guitar, radio, bell, thunder

18) CDs, flash disks, music tapes, computers...

19) Pulleys, wheel barrow, scissors, wedge, inclined planes

20) Boiling, filtration, sedimentation, using chlorine...

21) Heat the ice until it melts completely

22) Umbra and penumbra

23) Cooking food; boiling water; drying clothes; ironing clothes

24) It attracts iron and other electromagnetic materials. It has two poles: North and south poles where the magnetic field is concentrated.

25) It is an instrument used for showing geographical directions on earth or in airplanes.

26)

Deficiency of (lack of)	Disease
Proteins	Kwashiorkor
Vitamin D	Rickets
Iodine	Goitre
Vitamin B1	Beriberi
Iron	Anaemia

27) (a) Germination
 (b) Water (moisture), oxygen, warmth (suitable temperature)
 (c) The plant has grown a length that is equal to $11\text{cm} - 2\text{m} = 9\text{cm}$

28) (a) Flower
 (b) For decoration, used as medicines, for business activities,

29) (a) Pollination if the transfer of pollen grains from the anther to the stigma of the flower.
 Fertilization is the fusion of male and female gametes (sex cells).
 (b) Self-pollination, cross pollination.

30)

Organs	Functions
Ureter	Where urine is produced
Kidney	Brings urine from the kidney to the bladder
Urethra	Where urine is stored
Bladder	Where urine is eliminated from the body

31) (a) Pulmonary circulation and systemic circulation (also called general circulation)
 (b) No, all arteries do not carry oxygenated blood.
 (c) Pulmonary artery carries deoxygenated blood.
 (d) Carbon dioxide is removed from the blood
 Oxygen gas is added to blood.

32) (a) Pulmonary artery
 (b) Aorta
 (c) Pulmonary artery
 (d) Vena cava

33) (a) Lungs
 (b) The nose has hairs and mucus that trap dust and microbes and prevent them from entering into the lungs.

34) (a) Suffocation is the lack of oxygen
 (b) Apply mouth to mouth breathing
 (c) Emphysema, chronic bronchitis, lung cancer.

35) (a) Diarrhoea, dysentery, typhoid, cholera
 (b) Washing hands properly before eating
 Washing fruits before eating them
 Washing food containers properly
 Covering food

Drinking boiled water

36) (a) A: Humerus; B: Femur; C: Tibia
(b) Give body shape; help in body movements; store minerals such as calcium and phosphorus; they make blood cells; they protect internal organs such as the heart and the brain.

37) (a) Biceps, B: Triceps
(b) (i) Muscle A contracts/ shortens/ thickens
(ii) Muscle B relaxes/elongates/becomes thin.

Science and Elementary
Technology
PSET

13/11/2018 09AM – 11AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

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PRIMARY LEAVING NATIONAL EXAMINATIONS, 2018

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

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- 7) You must use **a blue or black** pen and a **pencil** for drawing.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) State any one form of:

a) Energy: **(1 mark)**

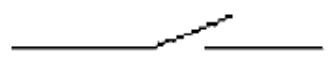
b) Renewable energy source: **(1 mark)**

2) Complete these sentences

(a) The area of a magnet where the magnetic force is strongest is called the magnetic **(1 mark)**

(b) An instrument which uses magnets to show directions is known as **(1 mark)**

3) Draw a line from each circuit symbol and link it to the electrical component it represents. **(3 marks)**

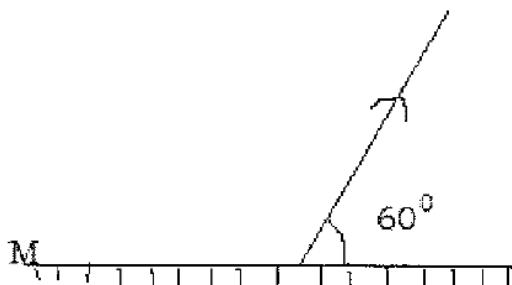
Circuit symbol	Electrical Component
	Resistor
	Dry cell
	Switch

4) (a) Use the term **refraction of light** or **reflection of light** to answer the following question.

The phenomenon by which the incident light falling on a surface and it is sent back into the same medium is known

..... **(1 mark)**

(b) The diagram below, not drawn to scale shows a reflected ray of light on a plane mirror M



(i) Use this diagram to draw the normal line to the mirror passing through the point of incidence **(1 mark)**

(ii) Find the value of the angle of incidence
..... **(1 mark)**

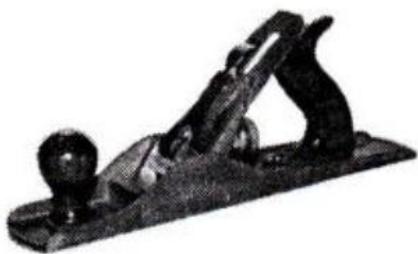
(iii) Draw an incident ray on the same diagram **(1 mark)**

5) Name any:

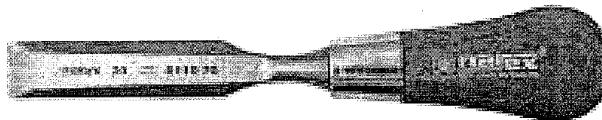
(a) Agricultural tool **(1 mark)**

(b) Danger of the misuse of agricultural tools.
..... **(1 mark)**

6) Name the carpentry tools in (a) and (b) below:



(a) **(1 mark)**



(b)

(c) What is the “spirit level tool” used for?

..... **(1 mark)**

7) Write any two masonry tools.

(a) (1 mark)
(b) (1 mark)

8) Mention any two materials used to make toys.

(a) (1 mark)
(b) (1 mark)

9) (a) The person who repairs machines is called:

..... (1 mark)

(b) The person who uses a tool known as anvil is called:

..... (1 mark)

10) Use True or False to answer the following:

(a) A screw driver isn't an example of a simple machine.
..... (1 mark)

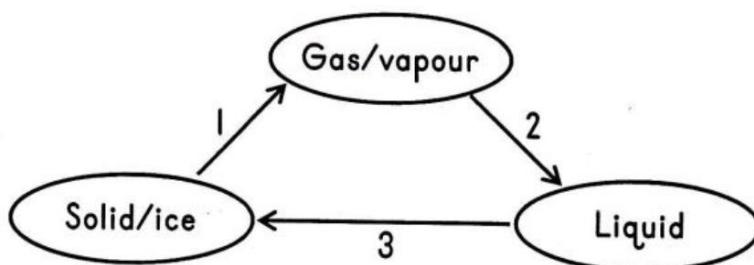
(b) For a lever to be a first level, the fulcrum needs to be between the load and the effort (1 mark)

(c) A simple machine is a tool that makes the work easier.
..... (1 mark)

11) Calculate the relative density of each substance and complete the table given below. (2 marks)

Material	Density in kg/m ³	Relative density
Water	1000	
Gold	19320	

12) Name the different phenomena of water changes shown in the diagram below.



a) (1 mark)
b) (1 mark)

c) (1 mark)

13) The physical parts of a computer are called (1 mark)

14) A small picture that represents a folder, program or other things is called:
..... (1 mark)

15) If you a document from the journal, it will be completely lost. (1 mark)

16) The activity you are working on is automatically saved and can be accessed from the
..... (1 mark)

17) Name three ways in which you can start using the write activity.
(a) (1 mark)
(b) (1 mark)
(c) (1 mark)

18) What do the following terms refer to as used in scratch?
(a) Sprite (1 mark)
(b) Animation (1 mark)

19) List any two popular programming languages for kids.
(a) (1 mark)
(b) (1 mark)

20) What is the use of Paint activity?
.....
..... (1 mark)

21) List four functions of scratch sound editor.
a) (1 mark)
b) (1 mark)
c) (1 mark)
d) (1 mark)

22) What is a search engine?
.....
..... (1 mark)

23) Explain the uses of the following commands.

(a) Back..... (1 mark)
(b) Left (1 mark)

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

24) (a) The characteristics for Movement is also called:

..... (1 mark)

(b) Give four main reasons why animals move.

(i) (1 mark)
(ii) (1 mark)
(iii) (1 mark)
(iv) (1 mark)

25) Using (→), match each animal in A with the correct group to which it belongs in B. (4 marks)

A (Animal)	B (Group)
Chameleon	Mammal
Toad	Reptile
Ostrich	Bird
Bat	Amphibian

26) List down two similarities between plants and animals.

(a) (1 mark)
(b) (1 mark)

27) (a) Look at the crossword puzzle below and find at least four parts of a flowering plant and list them.

S	O	V	U	L	E
O	H	R	S	Q	P
V	C	O	P	R	E
A	T	O	O	D	T
R	P	T	A	T	A
Y	S	B	Z	C	L

(i) (1 mark)
 (ii) (1 mark)
 (iii) (1 mark)

(b) What would happen to plants if there were no insects?
 (1 mark)

28) A farmer cuts down a forest to grow potatoes.

(a) Do you agree with his action? (1 mark)

(b) If Yes give reasons to support your answer.

.....
 (2 marks)

If No, support your answer.

.....
 (2 marks)

29) Match using an arrow, the items in Column A against those in Column B. (2 marks)

Column A	Column B
1. Sepal	(a) Female reproductive part
2. Petal	(b) Protect the inner part of the flower
3. Stamen	(c) Attract insects
4. Carpel	(d) Male reproductive parts

30) Complete the table below. (3 marks)

Parts of the Circulatory System	Function
1. Heart	
2. Heart	
3. Arteries	

31) (a) Name the two types of Pollination in Flowering plants.

(i) (1 mark)
 (ii) (1 mark)

(b) Write down any two agents of Pollination

(i) (1 mark)

(ii) (1 mark)

32) (a) Give two types of germination.

(i) (1 mark)

(ii) (1 mark)

(b) Apart from moisture, state any other condition necessary for seed germination (1 mark)

33) (a) Name two natural resources in the environment that enable green plants to make their food.

(i) (1 mark)

(ii) (1 mark)

(b) What is the name of the process in (a) above?

..... (1 mark)

(c) What gas is given off during this process? (1 mark)

34) (a) Which type of blood vessels return blood to the heart?

..... (1 mark)

(b) What is the function of valves in blood vessels during blood circulation?

..... (1 mark)

(c) What type of blood is carried by most blood vessels with valves?

..... (1 mark)

(d) Give any one waste material carried by blood.

..... (1 mark)

35) (a) Which organ removes urine from the body? (1 mark)

(b) To which body system does the organ that removes urine from the body belong? (1 mark)

(c) Where is urine collected before it is removed from the body?

..... (1 mark)

36) (a) Name the term that causes HIV/AIDS (1 mark)

(b) Apart from having sex with an infected person, write down any other way in which can get the germ that causes HIV/AIDS.

..... (1 mark)

(c) State the name of the insect that transmits malaria parasite from one person to another (1 mark)

37) Which part of the body is affected by each of the following diseases?

(a) Bilharzia..... (1 mark)

(b) Scabies (1 mark)

(c) Trachoma..... (1 mark)

(d) AIDS..... (1 mark)

-END-

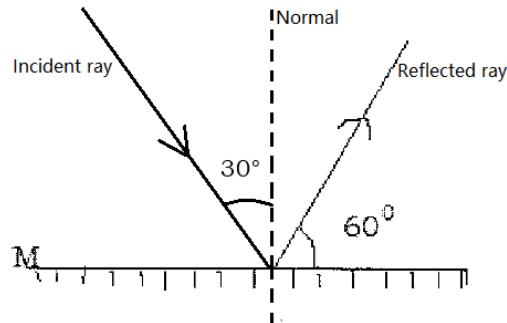
MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2018

1) (a) Light energy, thermal energy, wind energy, chemical energy
 (b) Solar energy, wind energy, hydro electric

2) (a) Pole field
 (b) Magnetic compass / compass
 3)

Circuit symbol	Electrical Component
	Resistor
	Dry cell
	Switch

4) (a) Reflection of light
 (b) (i)



$$(ii) 90^\circ - 60^\circ = 30^\circ$$

(iii) On the image above

5) (a) Hoe, spade, watering can, axe, wheel barrow
 (b) Cutting oneself, rusting of tools

6) (a) Plane / wood plane/ Jack plane
 (b) Chisel / wood chisel
 (c) To check if the surface is levelled or straight

7) Water level, trowel, plumb line, tape measure

8) Clay, mud, wires, straws paper, wood, banana fibre

9) (a) Mechanic / technician (IT)
 (b) blacksmith

10) (a) False
 (b) True
 (c) True

11)

Material	Density in kg/m³	Relative density
Water	1000	$= \frac{\text{Density of substance}}{\text{density of water}} = \frac{1000}{1000} = 1$
Gold	19320	$= \frac{\text{Density of substance}}{\text{density of water}} = \frac{19320}{1000} = 19.32$

12) (a) Sublimation
 (b) Condensation
 (c) Freezing

13) Hardware

14) Icon

15) Delete / erase

16) Journal / my document / ROM

17) (a) From the home view
 (b) From the invitation from a friend
 (c) From the journal

18) (a) Sprite: an icon used to display a given set of command
 (b) Animation: is the giving of an object human characteristics like talking, crying, walking, etc.

19) Scratch, turtle, java script, python

20) To draw colour and edit pictures / paint shapes / helps to develop activities.

21) (a) Recorded, exported, imported, modified, edited
 (b) Recording sound, importing sound, editing sound
 (c) Exporting sound, modifying sound, helps in film making
 (d) Playing sound, removing sound, adding sound

22) It is a web-based tool that enables users to locate information on the world wide web.

23) Back: You can move the turtle backwards

Left: You can change the turtle's direction to the left by a specified angle.

24) (a) Locomotion

(b) To look for food; to look for mates; to escape from predators; to look for shelter; to search for favourable environmental conditions.

25)

A (Animal)	B (Group)
Chameleon	Mammal
Toad	Reptile
Ostrich	Bird
Bat	Amphibian

26) Both reproduce; both grow; both respond to the external environments; both breathe

27) (a) Ovary, root, petal, ovule, shoot

(b) Most plants would not be pollinated as insects are the main pollinating agents.

28) Yes. Food is necessary for human survival.

No. Cutting down trees reduces rainfall formation leading to drought. Cutting down trees can lead to global warming.

29)

Column A	Column B
1. Sepal	(a) Female reproductive part
2. Petal	(b) Protect the inner part of the flower
3. Stamen	(c) Attract insects
4. Carpel	(d) Male reproductive parts

30)

Parts of the Circulatory System	Function
1. Veins	Carry blood towards the heart
2. Heart	Pumps blood to different parts of the body
3. Arteries	Carry blood away of the heart

31) (a) Self-pollination and cross pollination
(b) Wind, insects, birds, water, animals

32) (a) Hypogeal germination and epigeal germination
(b) Oxygen, suitable temperature/warmth

33) (a) water, carbon dioxide, sunlight, chlorophyll
(b) Photosynthesis
(c) Oxygen

34) (a) Veins
(b) To prevent the backflow of blood
(c) Deoxygenated blood
(d) Urea, carbon dioxide, uric acid, excess of water

35) (a) Kidney
(b) Urinary system
(c) Urinary bladder

36) (a) HIV virus
(b) Sharing cutting items; through birth from an infected mother; through blood transfusion of unscreened blood.
(c) Female Anopheles mosquito

37) (a) Bilharzia: intestines
(b) Scabies: skin
(c) Trachoma: eyes
(d) AIDS: blood/ white blood cells

Science and Elementary Technology

PSET

05/11/2019 09:00AM -11:00 AM



Pupil's complete index number

Province District Sector School Level Pupil Year
/City

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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2019

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) ***This paper consists of 12 pages and 49 questions. Before starting, check if all pages and all questions are there and are arranged in ascending order.***
- 3) This paper has **two sections: A and B**.
- 4) Questions in both sections are compulsory and must be answered as instructed.
- 5) Read each question carefully before answering it.
- 6) Answer the questions in the space provided on this question paper.
- 7) You must use **a blue or black** pen and a pencil for drawing.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

1) (a) Use **True** if the statement is correct and **False** if it is wrong to answer the sub questions below:

(i) An object that blocks light from passing through it is opaque
..... (1 mark)

(ii) When a light ray is incident on a plane mirror, it refracts.
..... (1 mark)

(b) Describe any one property of the image of your face in a plane mirror.

.....
.....
..... (1 mark)

2) State any two uses of solar energy

(a) (1 mark)

(b) (1 mark)

3) Use the appropriate tool from the following list: Trowel, wood chisel, open, ended spanner, tongs, plane; to answer the questions below:

(a) Name any one carpentry tool.

..... (1 mark)

(b) Identify one mechanics tool and one blacksmith tool.

Mechanics tool (1 mark)

Blacksmith tool (1 mark)

4) Give any two potential dangers that repair and maintenance workers of masonry, carpentry, agricultural, mechanics and blacksmith tools usually face.

(a) (1 mark)

(b) (1 mark)

5) (a) Name any one agricultural tool.

..... (1 mark)

(b) Two reasons why farmers put oil or grease on metal parts of agricultural tools are:

(i) **(1 mark)**
(ii) **(1 mark)**

6) Complete the statements below on magnetism.

(a) is the region present on a magnet where force of attraction or repulsion acts. **(1 mark)**
(b) The magnetic poles of a magnet are pole and Pole. **(2 marks)**

7) Describe the characteristics of a liquid in terms of shape and volume.

.....
.....
..... **(2 marks)**

8) (a) Draw an object that you can make using clay **(2 marks)**

(i) Drawing



(ii) The name of the object drawn is:

..... **(1 mark)**

(b) Propose one way that you can use to effectively maintain utility and learning objects produced by you and your classmates/colleagues.

..... **(1 mark)**

9) The volume of a certain sample of gold is 2cm^3 and its density is 19.32g/cm^3 .

(a) (i) Write the formula for calculating the mass of gold. **(1 mark)**

.....

(ii) Calculate the mass of gold and write its units. **(1 mark)**

.....

.....

(b) The density of water is 1g/cm^3 .

(i) Does this sample sink or float if it is submerged into water.

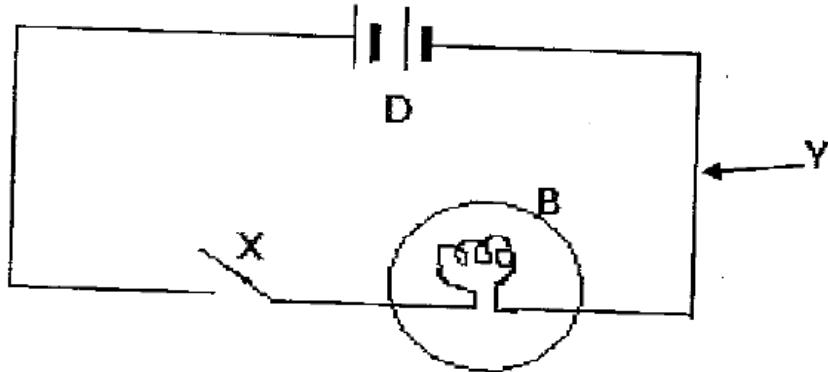
..... **(1 mark)**

(ii) Justify your answer

.....

..... **(1 mark)**

10) Study the diagram in the following figure then answer questions that follow.



(a) Name the component labelled B.

..... **(1 mark)**

(b) (i) What will happen to B if X is closed?

..... **(1 mark)**

(ii) Give a reason for your answer in 10 (b) (i) above.

.....

..... **(1 mark)**

(c) What will happen to B if X is closed and the element D is replaced by another element like B?

.....

..... (1 mark)

11) (i) Choose the best answer from the following four choices:

Saving data for later use are (1 mark)

- A. Input
- B. Distribution
- C. Storage
- D. Share

(ii) In order to save an existing document with a different name you need to use the (1 mark)

12) Choose the best answer from the following four choices:

www.rra.gov.rwa is an example of (1 mark)

- A) Website
- B) Email
- C) Xo Computer
- D) Laptop

For questions 13 to question 16, answer **True** or **False**

13) When using the write activity, the typed text is automatically saved when you close (1 mark)

14) You can find any kind of information using search engine (1 mark)

15) CDs and DVDs are optical storage devices (1 mark)

16) Scratch and turtle art are two popular programming languages for kids...
..... (1 mark)

17)is giving of objects human characteristics like movement, sound, saying etc. (1 mark)

18) is usually used to backup data. (1 mark)

- (a) External hard disk
- (b) Memory stick
- (c) Memory card

(d) None of these

19) State any three geometrical shapes used in graphics.

(2 marks)

.....
.....
.....

20) Explain the features of arithmetic operation.

(2 marks)

.....
.....
.....

21) tool is used for painting and editing image colours. **(2 marks)**

22) Name any three categories of blocks used in scratch.

(3 marks)

.....
.....
.....

23) Move the turtle forward with the number of pixels entered. **(1 mark)**

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

For questions 24 to 32, choose the most correct answer by putting a tick (✓).

24) Which of the following animals gives birth?

(1 mark)

- A. Bat
- B. Fish
- C. Toad
- D. Spiny ant-eater

25) Among the following foods, which one can be considered as a balanced diet? **(1 mark)**

- A. Chips
- B. Milk
- C. Fried chicken
- D. Green vegetables

26) Which of the following is NOT a condition necessary for germination?

(1 mark)

- A. Warmth
- B. Oxygen
- C. Moisture
- D. soil

27) Which of the following is the most reason why oxygen is used in seed germination?

(1 mark)

- A. It supports life
- B. It is easily available
- C. It supports burning
- D. It is not poisonous

28) Which one of the following is found in the Dermis part of the skin?

(1 mark)

- A. Urine
- B. Ureter
- C. Epidermis
- D. Sweat glands

29) Which one of the following represents the correct order of foetal development?

(1 mark)

- A. Embryo → Zygote → Foetus → Baby
- B. Foetus → Embryo → Zygote → Baby
- C. Zygote → Embryo → Foetus → Baby
- D. Zygote → Foetus → Embryo → Baby

30) Which type of erosion occurs mainly on steep slopes?

(1 mark)

- A. Gulley erosion
- B. Sheet erosion
- C. Rill erosion
- D. Splash erosion

31) Which of the following vitamins is responsible for good eye sight?

(1 mark)

- A. Vitamin D
- B. Vitamin C

C. Vitamin B
D. Vitamin A

32) Our body needs to be repaired after injuries. The best foods to build and repair the body are: **(1 mark)**

A. Millet, oranges, termites
B. Peas, cassava, groundnuts
C. Fish, beans, green vegetables
D. Wheat, milk, maize

33) Which of the following is a fact about HIV and AIDS? **(1 mark)**

A. People living with HIV and AIDS are going to die soon.
B. HIV and AIDS is a curse from God.
C. HIV is got through sexual intercourse
D. People living with HIV and AIDS are advised to eat small amounts of food at a time.

34) and are not part of the alimentary canal but they play a role in the digestion of food. **(2 marks)**

35) (a) The fusion of male and female reproductive cells forms
..... **(1 mark)**

(b) List down at least two functions of the placenta. **(2 marks)**

(i)
(ii)

36) (a) The reproductive part of a plant is the **(1 mark)**
(b) In a flower, the male sex cells are known as While the female sex cells are known as **(2 marks)**

From Question 37 to 41, answer **TRUE** or **FALSE**

37) Proteins are for growth and repair; they should therefore be given to children. **(1 mark)**

38) Glucose is used to provide energy during exercise, it should not be given to young children. **(1 mark)**

39) The circulatory system consists of the heart and blood vessels. **(1 mark)**

.....

40) HIV can be transmitted through blood when people share sharp instruments. **(1 mark)**

41) Mosquitoes cause malaria. **(1 mark)**

42) List four major functions of the skeleton. **(4 marks)**

(a)

(b)

(c)

(d)

43) Give five uses of water. **(5 marks)**

(a)

(b)

(c)

(d)

(e)

44) Mention 5 ways in which plants are important to humans. **(5 marks)**

(a)

(b)

(c)

(d)

(e)

45) (a) Pollution is: **(1 mark)**
.....

(b) What are common sources of air pollution? **(2 marks)**
.....
.....

46) Give at least two reasons why plants and animals are classified as living things. **(2 marks)**

(i)

(ii)

47) Match the items in list **A** with their functions in list **B**. **(4 marks)**

List A	List B
a. Red cells	1. Stops bleeding when the skin is cut
b. Arteries	2. Carry oxygen around the body
c. Valves	3. Carry blood away from the body
d. Platelets	4. Prevent back flow of blood in veins

48) Why is immunization of children carried out free of charge in Rwanda?

.....
..... **(1 mark)**

49) Why should young girls avoid getting pregnant?

(3 marks)

.....
.....
.....

-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2019

- 1) (a) (i) True
(ii) False
(b) The image and face are similar and equal in size
The image is upright
The image and face are in the equal distance
- 2) a) Used by plants in the process of photosynthesis
b) Gives electricity by solar panels
Dry clothes
- 3) a) Carpentry tool: wood chisel, trowel
b) Mechanics tool: open ended spanner
Blacksmith tool: tongs
- 4) a) Cutting ourselves
b) Being hit by moving object
- 5) a) One agriculture tool: hoe
b) (i) To avoid rust
(ii) Helps tools to work well
- 6) a) Magnetic field
b) **North** pole and **South** pole
- 7) Characteristics of liquids:
Have a defined volume
Take the shape of the container
- 8) a) (i) Drawing of an object in clay



(ii) Pot
(ii) Keep your objects in clean and dry place.

- 9) (a) (i) $m = D \times V$

$$(ii) \text{Mass of gold} = \frac{13.32g}{cm^3} \times 2cm^3 = 38.64g$$

(b) (i) Sink

(ii) Gold sinks into the water because an object with a density higher than $1g/cm^3$ will always sink into water.

10) (a) B is bulb

(b) (i) the light will appear to the bulb

(ii) when X is closed the current will move in all circuit

(c) Nothing will happen because you removed the circuit generator

11) (i) C. Storage

(ii) Save as

12) A. website

13) False

14) True

15) True

16) True

17) Zoomorphism

18) D. None of these. Note: Thumb drives are used to backup

19) Parallelogram

Octagon

Rhombus

20)

- **Addition:** is the most basic operation of arithmetic
- **Subtraction:** is the opposite of addition (used to remove)
- **Multiplication** combined multiple quantities into a single quantity
- **Division** is inverse of multiplication

21) Pencil

22) **Blocks** are puzzle piece shapes that are used to create code in scratch.

The three categories of blocks are: Sound, operators, control

23) Forward (fw) command

24) A. Bat

25) B. Milk

26) D. Soil

27) A. It supports life

28) D. Sweat glands

29) C. Zygote → Embryo → Foetus → Baby

30) A

31) D. Vitamin A

32) C

33) C

34) Liver and pancreas

35) (a) Zygote
(b) (i) Provide oxygen and nutrients to the embryo/fetus.
(ii) Remove waste products from the embryo/fetus
It also secretes hormones.

36) (a) Flower
(b) Stamens/sperm
Pistil /egg cell

37) True

38) False

39) True

40) True

41) False

42) (a) Help us to move
(b) Gives shape to our body
(c) Store minerals

(d) Bones protect internal organs such as the heart, brain and the spinal cord

43) Five uses of water

1. For cooking
2. Drinking
3. Washing
4. Swimming
5. Cleaning
6. Seed germination
7. Helps in digestion

44) The important of plant to human:

1. Provide food
2. Provide medicines
3. Provide oxygen
4. Provide rain
5. Provide charcoal
6. Provide construction materials
7. Used to make different utensils

45) (a) Pollution is: the presence of substance which has harmful poisonous effect to environment.

(b) common source of air pollution: charcoal burner, Exhaust pipes, fumes from motor vehicles and industries.

46) They all grow

They all reproduce

They all make respiration

They all respond to external environments

47)

List A	List B
a. Red cells	1. Stops bleeding when the skin is cut
b. Arteries	2. Carry oxygen around the body
c. Valves	3. Carry blood away from the body
d. Platelets	4. Prevent back flow of blood in veins

48) For protecting the population from having different diseases which can be prevented.

49) Pregnancy prevents them from reaching their dreams

They are not able to raise their children.

They are still young and their reproductive system is not yet mature.

They are still dependent to their parents.

Science and Elementary Technology

PSET

13/07/2021 09:00 –11:00 AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
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Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2021

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: /100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) ***This paper consists of 12 pages and 40 questions. Before starting, check if all pages and all questions are there and are arranged in ascending order.***
- 3) This paper has **two sections: A and B**.
- 4) Questions in both sections are compulsory and must be answered as instructed.
- 5) Read each question carefully before answering it.
- 6) Answer the questions in the space provided on this question paper.
- 7) You must use **a blue or black** pen and a pencil for drawing.

SECTION A: ATTEMPT ALL QUESTIONS. (50 marks)

- 1) What kind of toy or learning material can you make from the following materials?
 - a) Paper (1 mark)
 - b) Clay (1 mark)
- 2) a) State any one material you use in the classroom to support your learning process.
..... (1 mark)
- b) How do you take care of your learning materials?
..... (1 mark)
- 3) Name the agricultural tool escribed below:
 - a) It is a plastic container with backpacks and spray guns.
..... (1 mark)
 - b) We use this tool for collecting fallen leaves and levelling the soil.
..... (1 mark)
- 4) Describe the use of each of the following tools
 - a) Spanner
..... (1 mark)
 - b) Hand saw
..... (1 mark)
 - c) Bellow
..... (1 mark)
- 5) a) Identify:
 - (i) Any one natural material used in construction site.
..... (1 mark)
 - (ii) Any one masonry tool used in construction site

..... (1 mark)

b) Explain how the security measures can be applied in construction site.

.....

..... (1 mark)

6) Use appropriate terms to complete the following statements:

- The angle of incidence is to the angle of reflection when a ray is reflected by a plane mirror. (1 mark)
- The ray of light going from glass to air..... away from the normal.

..... (1 mark)

- material is a material which allows light to completely pass through it. (1 mark)

7) A) Why is electricity important?

- (1 mark)
- (1 mark)

b) Prove that electricity may be dangerous when it is mishandled.

.....

..... (1 mark)

8) a) Provide any one non-metallic material.

..... (1 mark)

b) Why is cooking utensil made of metal?

.....

..... (1 mark)

9) Use **true** or **false** to answer the sub questions below:

a) A hoe is second lever.

..... (1 mark)

b) A simple machine enables people to do work with less effort and a greater speed.

..... (1 mark)

c) People should always be careful when using simple machines.

..... (1 mark)

10) a) State any one advantage of using renewable energy.

..... (1 mark)

b) What energy change takes place when a piece of wood is burned?

..... (1 mark)

11) a) What happens when two unlike poles of two different magnets come closer to each other?

..... (1 mark)

b) What happens to the magnetic force between two magnets when the distance between two unlike poles increases?

Choose from decreases, increases or remains the same.

..... (1 mark)

12) Read the statement below carefully and answer the questions that follow:

At 100°C and a standard pressure, water changes state from liquid water to gas (water vapour). At 0°C and below this temperature, liquid water becomes solid water called ice.

Questions:

a) (i) What is the boiling point of water?

..... (1 mark)

(ii) Determine the melting point of ice.

..... (1 mark)

b) Name the change phase from liquid water to ice.

..... (1 mark)

13) Communication is a process of sending and receiving information from one person to another. Give any 4 means of communication used in Rwanda.

.....

.....
.....
.....

(4 marks)

14) Paint activity is used for **(1 mark)**

- a) Typing letters
- b) Painting
- c) Drawing, colour and editing
- d) None of these

15) The process of writing a computer program is called

.....
.....

(1 mark)

16) What do you understand by the term “email”? **(2 marks)**

.....
.....

17) State whether the following statements are **True** or **False**. **(4 marks)**

- a) Storage devices are only external:
- b) A user can make changes in ROM:
- c) CDs as well as DVDs are optical storage devices:
- d) We can share files with others in the neighbourhood.

18) What is a folder? **(2 marks)**

.....
.....

19) Give any 2 examples of general search engine.

.....
.....

20) Name any two popular programming languages for children. **(2 marks)**

.....
.....

21) Define the term Sugar interface. **(2 marks)**

.....
.....

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

22) Water has been collected from a well.

Give three methods of making this water safe for drinking. **(3 marks)**

.....
.....
.....

23) Name any two diseases associated with pollution.

(2 marks)

.....
.....

24) Which part of the Eye is responsible for the following:

(i) Formation of image.

..... **(1 mark)**

(ii) Carrying image from the eye to the brain.

..... **(1 mark)**

(iii) Changing the shape of the lens.

..... **(1 mark)**

25) Give examples of each of the following bones.

a) Long bones.

..... **(1 mark)**

b) Short bones

..... **(1 mark)**

c) Flat bones

..... **(1 mark)**

26) a) What are the major differences between sexual and asexual reproduction?

.....
..... **(2 marks)**

b) What are secondary sexual characteristics for boys and girls?

Boys

.....

Girls
..... (2 marks)

27) a) Give any one habit that may lead a person to catch AIDS.
..... (1 mark)

b) Suggest the best way of controlling the spread of AIDS.
..... (1 mark)

28) a) Give any three characteristics of living things. (3 marks)

.....
.....
.....

b) A cow and a bat are classified as mammals. To which class of animals do the Tortoise and Lizard belong? (1 mark)

.....
.....
.....

29) How are plants different from animals in the way they get their food? (2 marks)

.....
.....

30) Give two ways of controlling the spread of the following diseases without using drugs.

(i) AIDS
..... (1 mark)
(ii) Malaria
..... (1 mark)

31) Give the function (use) of each of the following:

(i) White blood cells.
..... (1 mark)
(ii) Red blood cells
..... (1 mark)
(iii) Platelets
..... (1 mark)

32) Apart from having bright colour, state any one characteristic of insect pollinated flowers?

..... (1 mark)

33) Apart from movement, give any other Two functions of human skeleton.

(2 marks)

.....
.....

34) A) Where in the digestive system do the following take place?

(i) Absorption of digested food. (1 mark)

.....

(ii) Absorption of water. (1 mark)

.....

(b) What are the end products of digestion of:

(i) Starch (1 mark)

.....

(ii) Proteins (1 mark)

.....

(iii) Fats (1 mark)

.....

35) Give the functions of the following plant parts:

(i) Roots (2 marks)

.....

.....

(ii) Stem (2 marks)

.....

.....

36) Complete the table below that compares Insect pollinated and Wind pollinated flowers. **(4 marks)**

Insect Pollinated Flower	Wind Pollinated Flower

37) a) Give the general name of blood vessels which carry blood away from the heart to various parts of the body. **(1 mark)**

.....

b) Why does blood go to the kidney during circulation? **(1 mark)**

.....

38) Suggest any Two problems of early pregnancy to a school girl below 18 years. **(2 marks)**

.....

.....

39) Apart from the skin and lungs, name any other excretory organ. **(1 mark)**

40) Give any one reason why people like brick makers need to feed on carbohydrates. **(1 mark)**

.....

.....

-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2021

- 1) a) Kite
b) Cow, cat, person etc.
- 2) a) Note books, text books, pens etc.
b) Do not write on text books, clean classrooms etc.
- 3) a) A spraying pump
b) Rake
- 4) a) For fastening of nuts and bolts
b) Cutting pieces of wood into different shapes and sizes.
c) Blowing the air into the fire
- 5) a) (i) Water, stones, sand
(ii) Wheel barrow, spade, shovel
b) By the use of hand gloves
- 6) a) Opaque
b) Reflection
c) Transparent
- 7) (a) It is used for cooking
It is used for producing light
It is used for ironing
It is used to run different instruments such as TV, computer...
(b) It can lead to death
It can cause burns
- 8) (a) Plastic bottle, glass
(b) They are good conductor of heat
- 9) (a) False
(b) True
(c) True
- 10) a) They are cheap
They do not cause air pollution
b) Chemical energy to thermal energy
- 11) a) They attract each other
b) Decreases

12) a) (i) 100°C
(ii) 0°C
b) Freezing

13) Mobile phones
Computers
Radios
By the use of drums

14) (b) Painting

15) Programming

16) E-mail is a system of sending and receiving messages electronically over a computer network/smartphone.

17) a) False
b) False
c) True
d) True

18) A folder is a storage unit where files and documents are stored.

19) Yahoo, google, ask.com

20) Java script, python, ruby

21) A system software designed for children to learn on.

22) Boiling, Filtration, chlorination

23) Cholera, typhoid, dysentery

24) (i) Retina
(ii) Optic nerve
(iii) Ciliary muscles or suspensory ligaments

25) (a) Femur, humerus, radius
(b) Tarsals, carpals
(c) Scapula

26) (a) Sexual reproduction requires two parents while asexual reproduction requires one parent.

Sexual reproduction requires involves the fusion of male and female gametes while asexual reproduction does not involve the fusion of male and female gametes.

Sexual reproduction gives rise to genetic variation while asexual reproduction does not give rise to genetic variation.

b) Boys: voice deepens; increase of sex organs; appearance of beard; body becomes muscular;

Girls: menstruation starts; hips broaden; mammary glands increase in size...

- 27) a) Sexual intercourse; sharing cutting items
b) Abstinence; use of condoms; avoid sharing cutting items
- 28) a) Reproduction, growth, movement, nutrition, movement, respiration
b) Reptile
- 29) Plants make their own food by photosynthesis while animals are not able to make their own food.
- 30) a) Abstinence, using condoms
b) Remove stagnant water around houses; using insecticides to kill mosquitoes; sleeping under mosquito nets
- 31) a) Body defence / Protection against diseases
b) Transport of oxygen
c) Blood clotting / Blood coagulation
- 32) They produce nectar
They are scented / good smell
They produce a small number of pollen grains
- 33) Bones give body shape
Bones help in body movement
Bones produce blood cells
Bones protect internal organs such as heart and brain
- 34) (a) (i) Small intestine
(ii) Large intestine
(b) (i) Glucose
(ii) Amino acids
(iii) Glycerol and fatty acids
- 35) (i) Fix plants into the soil; absorb water and mineral salts
(ii) Transport water and mineral salts from roots to branches and leaves;

36)

Insect Pollinated Flower	Wind Pollinated Flower
Have brightly coloured petals	Have dull colours
Produce nectar	Do not produce nectar
Have scent	Have no scent
Produce a small number of pollen grains	Produce a small number of pollen grains
The flower has a large size	The flower has a small size

37) (a) Arteries
(b) For purification / to remove metabolic wastes products from the blood.

38) Drop out of the school
Death during birth
Inability to raise the children

39) Kidney, liver

40) To obtain energy required for this hard work.

Science and Elementary Technology PSET

19/07/2022 09:00 –11:00 AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
<input type="text"/>						

Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2021 - 2022

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: / 100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) This paper has **two sections: A and B**.
- 3) Questions in both sections are compulsory and must be answered as instructed.
- 4) Read each question carefully before answering it.
- 5) Answer the questions in the space provided on this question paper.
- 6) You must use a **blue** or **black** pen.

SECTION A: ATTEMPT ALL QUESTIONS (50 MARKS)

1) List down any two examples of agricultural tools. **(2 marks)**

a)

b)

2) What is the difference between a spirit level and a plumb line? **(2 marks)**

.....
.....

3) Explain any one use of a flash disk. **(1 mark)**

.....
.....

4) How would you reduce friction in a machine and other bodies. **(2 marks)**

.....
.....

5) How is communication important to people? **(2 marks)**

.....
.....
.....

6) Complete the table below: **(3 marks)**

Tool	use
Clamp	
	Cutting metals
Bellow	

7) Which two ways can you use to prevent accidents in a mechanic's workshop? **(2 marks)**

(i)

(ii)

8) Explain how toys are useful to children. **(2 marks)**

.....
.....

9) List any two popular programming languages for children. **(2 marks)**

(i)

(ii)

10) Match the category of materials below with their corresponding use.

(3 marks)

Materials	Use
a) Spatula, hoe handle	i) Learning objects
b) Square, Cube, Triangle	ii) Toy objects
c) Doll, teddy bear	iii) Utility objects

11) List any two materials we use to make learning objects. **(2 marks)**

(i)

(ii)

12) Which techniques would you use when making a basket? **(2 marks)**

.....

.....

13) Explain how a computer is useful in our daily life. **(3 marks)**

.....

.....

.....

14) Match the ICT terms below with their meaning. **(2 marks)**

Terms	Meaning
a) Hardware	i) Computer programs
b) Internet	ii) Physical component of a computer
c) Software	iii) World-wide interconnection
d) Application	iv) Instructions written by computer specialist

15) Air is a mixture of gases. Give any two examples of gases found in air.

(2 marks)

(i)

(ii)

16) Give any one chemical substance from industries that destroys Ozone layer. **(1 mark)**

.....
.....

17) In order to send and receive an e-mail, both the sender and receiver must have **(2 marks)**

- a) Bank account
- b) e-main account
- c) Post office
- d) e-banking

18) Which of the following is the percentage of Nitrogen in the atmospheric air? **(1 mark)**

- a) 78%
- b) 21%
- c) 0.1%

.....
.....

19) Give any two diseases associated with polluted water. **(2 marks)**

- (i)
- (ii)

20) Explain the difference between evaporation and condensation. **(2 marks)**

.....
.....

21) Give any two human activities that can cause global warming. **(2 marks)**

- (i)
- (ii)

22) Give any two types of soil. **(2 marks)**

- (i)
- (ii)

23) Explain why fertilizers are used in agriculture. **(2 marks)**

.....
.....

24) Why has the government of Rwanda stopped the use of plastic bags? **(2 marks)**

.....

25) Why is it necessary for all homes to have toilets/latrines? **(2 marks)**

.....

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

26) Match the diseases with their symptoms (2 marks)

Diseases	Symptoms
i) Tapeworms	a) Difficulty in breathing
ii) Pneumonia	b) Worms might be seen in droppings

27) Suggest any two conditions of a good chicken house. **(2 marks)**

i)

ii)

28) Match each animal with its respiratory organs. **(2 marks)**

Animal	Respiratory organs
a) Tilapia	i) Book lungs/trachea
b) Spider	ii) Gills
c) Mosquito	iii) Spiracles
d) Man	iv) Lungs

29) Why is the government of Rwanda emphasizing that there should be at least one cow per family? (1 mark)

.....

) Name two animals that breathe through spiracles. **(2 marks)**

(i)

(ii)

31) What is the difference between photosynthesis and transpiration?

(2 marks)

32) Match each part of a flower with its function.

(3 marks)

Parts of flower	Function
a) Petals	i) Contains ovules
b) Sepals	ii) Receives pollen grains
c) Stigma	iii) Holds stigma in position
d) Style	iv) Produces pollen grains
e) Ovary	v) Protect young flower
f) Anther	vi) Attract pollinators

33) Draw the female part of a flower and name its parts.

(2 marks)

34) Give the difference between pollination and fertilization.

(2 marks)

35) Study the table below and fill in the missing information.

(4 marks)

Organ	Sense	Nerve
Eye	Sight	
Tongue		Gustatory/Lingual
Ear	Hearing	
	Smell	Olfactory nerve

36) Complete the sentences below with appropriate terms.

(2 marks)

- a) Organs that help us to see, hear, smell, taste, and feel are called

- b) Our body is supported by a framework of bones called

37) Give the difference between short sightedness and long sightedness.

(1 mark)

38) Observe the following food substances in the table and give the end products after digestion. (3 m)

(3 marks)

Food substances	End product
Carbohydrates	
Proteins	
Fats	

39) Give any one important hormone that helps in the growth of the body during adolescence in both boys and girls. **(2 mar)**

(2 marks)

In boys:

In girls:

40) Mention any three functions of blood in the human body. **(3 marks)**

(i)

(ii)

(iii)

41) Describe what happens to the ribs and lungs when we breathe in and out. **(2 marks)**

(2 marks)

Breathing in:

.....

Breathing out:

.....

42) Suggest two ways of preventing the spread of sexually transmitted diseases (STDs). (1)

(i)

(ii)

43) Give the difference between sperm and ovum in terms of their shape and size. **(2 marks)**

.....
.....

44) Match the process in **A** with its meaning in **B**. **(2 marks)**

Process (A)	Meaning (B)
a) Ovulation	i) Union of sperm and ovum
b) Implantation	ii) Period from fertilization to birth
c) Fertilization	iii) The release of ovum by the ovary
d) Pregnancy	iv) Attachment of the embryo to the uterus

45) State two consequences of early teenager pregnancy. **(2 marks)**

(i)
(ii)

46) Matter can change from one state to another. State any one example to support this statement. **(1 mark)**

.....
.....

47) Give two reasons why some objects sink in water. **(2 marks)**

(i)
(ii)

48) Give any two properties of liquid. **(2 marks)**

(i)
(ii)

49) Give any two uses of electricity in our daily life. **(2 marks)**

(i)
(ii)

50) An object has a mass of 95g and a volume of 19cm³. Calculate its density. **(1 mark)**

.....
.....
.....

-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2021-2022

- 1) (i) Hoe, machete, panga, watering can, spade
 (ii) Trowel, watering wheel, tractor, axe, etc...
- 2) Spirit level is a carpentry tool that is used to check whether the surface is horizontal or vertical while a plumb line is a masonry tool used to find out whether the wall is upright or not.
- 3) The flash disk is used for storing data (music, videos, pictures, documents etc.)
- 4) By putting oil or grease on a turning port of a machine.
 By keeping a machine in a dry and clean place.
- 5) It is source of information.
 It creates friendship among people.
- 6)

Tool	use
Clamp	Holding a piece of wood to prevent its movement
Hack saw	Cutting metals
Bellow	Blowing air onto the fire

- 7) (i) Wearing protective gear/clothes like gloves, boots, overall
 (ii) Not keeping tools in a path of other workers.
- 8) (i) Toys help children to play and relax
 (ii) Toys are a source of happiness to children.
- 9) Turtle Art, Scratch
- 10)

Materials	Use
a) Spatula, hoe handle	→ i) Learning objects
b) Square, Cube, Triangle	→ ii) Toy objects
c) Doll, teddy bear	→ iii) Utility objects

- 11) Papers, manila papers, threads, banana fibers, wool, wood

12) Coiling, plaiting, twining

13) (i) It is used for storing information
(ii) It is used for communication

14)

Terms	Meaning
a) Hardware	i) Computer programs
b) Internet	ii) Physical component of a computer
c) Software	iii) World-wide interconnection
d) Application	iv) Instructions written by computer specialist

15) Nitrogen, oxygen, carbon dioxide

16) Carbon monoxide, nitrogen oxide, CFCs, fumes...

17) E-mail account

18) a) 78%

19) Cholera, dysentery, typhoid

20) Evaporation is the process by which a liquid changes to a gas while condensation is the process by which a gas changes to a liquid.

21) Deforestation, burning forests, burning fossil fuels, gases from industries, overgrazing

22) (i) Loam soil, clay soil
(ii) Sand soil

23) (i) Fertilizers increase soil fertility
(ii) They help crops to grow well and fast

24) Because plastic bags do not decompose
Because plastic bags cause soil pollution.

25) Because toilets keep wastes (faeces and urine) which contain germs that cause diseases.
Because it is good to maintain hygiene and sanitation.

26)

Diseases	Symptoms
i) Tapeworms	a) Difficulty in breathing
ii) Pneumonia	b) Worms might be seen in droppings

27) (i) It should be strong and wide

(ii) It should have clean water and feeders.

(iii) It should be clean

28)

Animal	Respiratory organs
a) Tilapia	i) Book lungs/trachea
b) Spider	ii) Gills
c) Mosquito	iii) Spiracles
d) Man	iv) Lungs

29) A cow provides meat and milk which contains nutritious food elements.

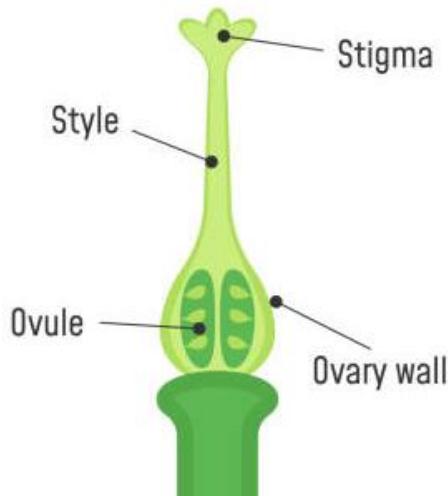
30) Butterflies, grasshoppers, bees, houseflies...

31) Photosynthesis is the process by which green plants make their own food by using water, carbon dioxide in presence of sunlight and chlorophyll while transpiration is the loss of water in gaseous state from plant leaves.

32)

Parts of flower	Function
a) Petals	i) Contains ovules
b) Sepals	ii) Receives pollen grains
c) Stigma	iii) Holds stigma in position
d) Style	iv) Produces pollen grains
e) Ovary	v) Protect young flower
f) Anther	vi) Attract pollinators

33)



34) Pollination is the transfer of pollen grains from the anthers to the stigma while fertilization is the fusion of the male and female gametes.

35)

Organ	Sense	Nerve
Eye	Sight	Optic nerves
Tongue	Taste	Gustatory/Lingual
Ear	Hearing	<i>Auditory nerves</i>
Nose	Smell	Olfactory nerve

36) (a) Sensory organs
(b) Skeleton

37) Short-sightedness is an eye defect where the patient sees clearly very close objects but unable to see clearly far objects while long-sightedness is an eye defect where the patient sees clearly distant objects but unable to see clearly very close objects.

38)

Food substances	End product
Carbohydrates	Glucose
Proteins	Amino acids
Fats	Glycerol and fatty acids

39) In boys: testosterone
 In girls: oestrogens and progesterone

40) Transport of nutrients
 Transport of metabolic waste products
 Body defense
 Temperature regulation

41) Breathing in: The ribs move upwards and outwards while the lungs expand in size.
 Breathing out: The ribs move downwards and inwards while the lungs reduce in size.

42) Abstaining from sexual intercourse
 Using condoms
 Avoid drug use
 Being faithful to your partner

43) The ovum is bigger than the sperm (the ovum is bigger whereas the sperm is smaller)
 The sperm is long with a tail and head while the ovum is spherical and has no tail.

44)

Process (A)	Meaning (B)
a) Ovulation	i) Union of sperm and ovum
b) Implantation	ii) Period from fertilization to birth
c) Fertilization	iii) The release of ovum by the ovary
d) Pregnancy	iv) Attachment of the embryo to the uterus

45) (i) Dropping out of school
 (ii) It leads to illegal abortion
 (iii) Family rejection
 (iv) It causes emotional stress

46) Liquid water is in liquid state. When you heat it for a long time, it becomes vapour which is in gaseous state. When you cool water until 0°C, it becomes ice.

47) (i) Objects sink in water because their density is greater than that of water.
 (ii) Objects sink in water because they have tightly packed molecules.

48) (i) Liquid has no definite (fixed) shape
(ii) Water flows easily
(iii) Water is colourless

49) It is used for lighting, welding, shaving hair, ironing clothes...
It is used for operating electric devices like TV, radio, refrigerators...

50) $Mass = 95g$
 $V = 19cm^3$
 $D = \frac{m}{V} = \frac{95g}{19cm^3} = 5g/cm^3$

Science and Elementary Technology PSET

18/07/2023 09:00 –11:00 AM



Pupil's complete index number

Province /City	District	Sector	School	Level	Pupil	Year
<input type="text"/>						

Pupil's names

Surname:

Other names:

NB: PUPIL'S INDEX NUMBER AND NAMES
MUST BE WRITTEN AS THEY APPEAR ON THE
REGISTRATION FORM

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2022- 2023

SCIENCE AND ELEMENTARY TECHNOLOGY

DURATION: Two hours

Marks: / 100

INSTRUCTIONS:

- 1) Do not open this paper until you are told to do so.
- 2) This paper has **one section**.
- 3) All questions are compulsory and must be answered as instructed.
- 4) Read each question carefully before answering it.
- 5) Answer the questions in the space provided in this question paper.
- 6) You must use a **blue** or **black** pen and a pencil for drawing.

SECTION A: ATTEMPT ALL QUESTIONS (50 MARKS)

1) How is agriculture important to humans? **(2 marks)**

.....
.....
.....

2) Write down any two ICT tools which are used in communication.

(2 marks)

.....
.....

3) How are plants useful to people?

(2 marks)

.....
.....
.....

4) How can you maintain trees healthy?

(2 marks)

.....
.....
.....
.....
.....

5) Name any one tool that can be used to cut papers when making utility objects.

(1 mark)

.....

6) Name any two bad effects of heavy rain to the environment. **(2 marks)**

.....
.....

7) Identify any two human activities that can lead to water pollution.

(2 marks)

.....
.....
.....

8) What are metals?

(2 marks)

9) Explain any two how chicken diseases can be prevented. **(2 marks)**

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10) Explain the importance of adding fertilizers to soil. **(2 marks)**

.....

.....

11) Name any two ways of protecting environment from soil erosion.

(2 marks)

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Digitized by srujanika@gmail.com

12) Name any two objects that can be made from wires. **(2 marks)**

.....

13) Explain why the sound from a long-distance is clearer during the night

than during the day. (2 marks)

14) Identify any two major classes of vertebrates. **(2 marks)**

.....

15) What is the importance of rabbit keeping? **(2 marks)**

.....

.....

16) Give one tool that is used by mechanics. **(1 mark)**

17) State any two ways of maintaining mechanical and blacksmith tools.

(2 marks)

18) Match the simple machines below to their uses.

(4 marks)

Machines	Uses
Needle	for transporting loads
Fishing rod	for digging
Wheel barrow	for knitting clothes
Hoe	for catching fish

19) Tom and Jane are sitting on a seesaw. If Jane who is 6cm away from the fulcrum weighs 40kg, find the mass of Tom who is 8cm away from the fulcrum. **(2 marks)**

(2 marks)

20) Give any two objects which you can make out of banana fibres. **(2 marks)**

(4 marks)

22) Mention any two tasks that can be performed using different computer applications. **(2 marks)**

Q) Give any one requirement that is needed to open an E-mail account?

(1 mark)

24) What is the difference between a file and a folder? **(1 mark)**

.....
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.....

25) Define the following terms as they are used in scratch activity: **(2 marks)**

a) Sprite:

Animation:

26) What advice would you give to people who use fossil fuel as a source of energy? **(2 marks)**

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.....

27) State any one danger of polluted air. **(1 mark)**

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e) What is another name for biodegradable waste? **(1 mark)**

.....

29) Apart from vaccinating goats and cattle, name other two ways of preventing diseases. **(2 marks)**

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30) Explain the importance of keeping sanitation in an animal farm.

(2 marks)

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31) Define the term incubation. **(1 mark)**

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32) Draw and label an insect with its 3 major parts. **(3 marks)**

33) What type of first aid that should be given in case of muscle cramp attack? **(3 marks)**

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34) Organize the following crops into legumes, root tubers, vegetables and fruits: **(4 marks)**

Beans, Cassava, mango, Cabbage, Soya beans, Carrot, Apple, spinach.

Legumes	Root tubers	Vegetables	Fruits

35) Distinguish between balanced diet and carbohydrates. **(2 marks)**

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36) Outline any two examples of digestive glands. **(2 marks)**

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37) Draw a diagram to show an incident ray reflecting after falling on a plane mirror. **(3 marks)**

38) Match the following deficiency diseases to their causes. **(4 marks)**

Diseases	Causes
Goitre	lack of carbohydrates
Kwashiorkor	lack of iodine
Anaemia	lack of proteins
Marasmus	lack of iron

39) Outline the elements of a balanced diet. **(2 marks)**

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40) Complete the following with a correct digestive juice secreted by each body organ. **(2 marks)**

a) The liver:

b) Pancreas:

41) Develop any two ways that can be applied to prepare organic manure. **(2 marks)**

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42) Identify the mode of asexual reproduction that can be applied in the crops below: **(2 marks)**

a) Strawberry:
.....

b) Cassava:
.....

43) How do we call the liquid part of blood? **(1 mark)**

.....

44) Name one type of breathing. **(1 mark)**

.....

45) What advice can you give to prevent unwanted pregnancy? **(2 marks)**

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.....

46) What is reproduction? **(1 mark)**

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47) Give any two ways of maintaining the respiratory system. **(2 marks)**

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48) Name one state of matter. **(1 mark)**

.....

49) Name any two objects at home which need magnets to function.

(2 marks)

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50) Differentiate between renewable energy and non-renewable energy.

(2 marks)

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-END-

MARKING GUIDE OF P6 SET NATIONAL EXAMINATION 2022-2023

- 1) Agriculture helps us to get food
Agriculture helps us to get money by selling the goods
Agriculture helps us to get the grass to feed the cattle.
It is a source of income
People can get employed
- 2) Computer, smartphone, tablet, television, mobile phones
- 3) Plants provide food to people
Plants provide oxygen to people
Plants prevent global warming by reducing the level of carbon dioxide in the atmosphere.
Plants provide building materials
Plants provide firewood
Plants beautify the environment.
- 4) We can maintain trees healthy by providing them with fertilizers
We can maintain trees healthy by ploughing the area where trees are grown.
Protect your trees from pests
Watering them regularly
Remove weed and grass from trees.
- 5) Scissors, razor blade, ruler, paper cutter machines, pencil
- 6) It can cause soil erosion
It can cause the destruction of crops
It can cause the destruction of buildings and roads
It can cause flooding
It can cause the spread of diseases
It can kill people
It can cause flooding
- 7) Release of human and animal waste into water
Release of waste from the industries into water
Release of waste from the homes into water
Farm chemicals such as fertilizers
Agriculture
Mining
Defaecating in water sources
Washing cars near water sources

Washing clothes near water sources

- 8) A metal is a material that is typically hard and shiny.
Metals are good conductors of electricity and heat.
- 9) Always keep the chicken house clean.
Add preventive drugs to chicken feeds or drinking water.
Disinfect the feeding and watering equipment.
Isolate sick chicken
Vaccinate chickens
Separation of old chickens from young ones
- 10) They replace the nutrients lost through erosion or leaching.
They help to increase crop yields.
Inorganic fertilizers release their nutrients to crops very quickly. This makes crops grow fast.
They add fertility to soil
They make plants (crops) grow faster
They replace the nutrients lost through soil erosion.
- 11) By afforestation
Using terracing
Using soil cover
Using shelter belts
Contour ploughing
Digging ditches
Mulching
- 12) Toy car, toy house, motor cycle, bicycle, bags, socks, scarf, hats
- 13) At night there is quietness and no objects that distract sound movement unlike daytime.
At night there is less noise than during the day.
- 14) Classes of vertebrates are mammals, birds, reptiles, amphibians and fish.
- 15) The meat of rabbits is sold for food.
The fur of rabbit is made into wool and then woven into cloth.
Many people keep rabbits as pets.
Rabbit skin is used to make bags, gloves, shoes and ear muffs.
Rabbit droppings are used as manure.
- 16) Pliers, spanners, crew driver

17) Cleaning after use

Oiling /Greasing

Repairing

Galvanizing tools

Keeping the tools in a clean, dry and safe place.

Keeping tools in **toolbox** after use.

18)

Machines	Uses
Needle	for transporting loads
Fishing rod	for digging
Wheel barrow	for knitting clothes
Hoe	for catching fish

19) $6cm \times 40kg = \text{Mass} \times 8cm$

$$\text{Mass of Tom} = \frac{6cm \times 40kg}{8cm} = 30kg$$

20) Ropes, mats, bags, balls, chairs and dustbins.

21) Socks: Sewing needle, Pair of scissors, Razorblade, Threads

Dolls: clay, water, model of the doll

Polygons: pencil, manila paper, ruler, razor blade

Toy car: wires, clay, scissors, papers

22) Writing a text

Playing games

Drawing

Typing letters

Downloading a song or movie

Playing a film

23) To have an internet connection; to have an E-mail account; your name; your date of birth; phone number; password;

24) A folder contains many files. A file is a single entity containing instructions or data stored on a computer or hard disk.

A file is a saved document while a folder is a storage unit for files and documents.

25) (a) Sprite is an object that performs an action in dialogues and in form of cartoons. Or it is an object that can perform human character.
(b) An animation is an icon used to display a given set of comments.

It is the act of giving an object a human character. (Speaking and movement)
Is making sprite to move, say and speak.

26) Decreasing the use of fossil fuels which are non-renewable energy sources.
Using renewable energy sources instead of using non renewable energy sources such as fossil fuels which pollute the environment.

27) Polluted air can cause diseases of the respiratory system.
It can lead to global warming.
It can cause acidic rain.

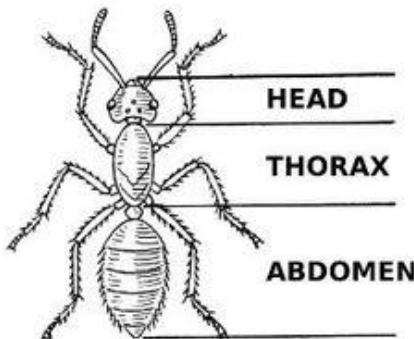
28) Biodegradable wastes are also referred to as decomposable wastes, recyclable waste, food waste or organic waste.

29) Quarantine
Isolation
Use of drugs such as antibiotics to treat the disease
Dipping or spraying to control external parasites that may cause diseases among others

30) To prevent the spread of diseases
To maintain the good health of goats and cattle
Treat them with antibiotics

31) Incubation of eggs means keeping eggs under conditions that allow them to hatch into chicks.

32)



33) Stretch the cramped muscle to increase flexibility.
Gently massage the cramped muscle.
Massage
Drink plenty of water.

Take a hot water bath.

34)

Legumes	Root tubers	Vegetables	Fruits
Soya beans	Carrot	Spinach	Mango
Beans	Cassava	Cabbage	Apple

35) A balanced diet is a diet that contains all the nutrients in the right amounts.

Carbohydrates is one of the nutrients that is used to provide energy to the body. Carbohydrates are described as energy giving foods.

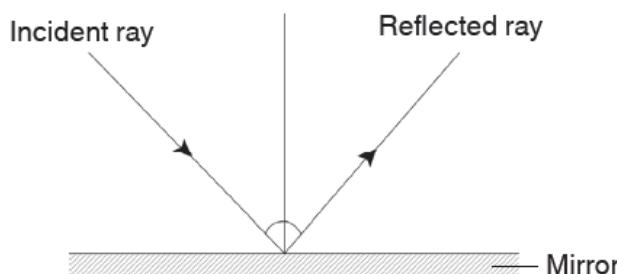
36) Salivary glands which produce saliva

Gastric glands which produce the gastric juice

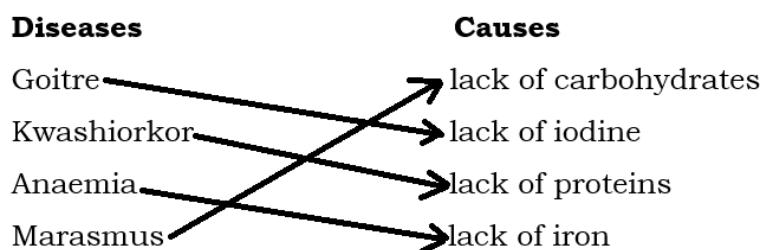
Pancreas which produces the pancreatic juice

Liver which produces the bile

37)



38)



39) A balanced diet contains carbohydrates, proteins, fat and oils, minerals, vitamins and roughages.

40) (a) Bile

(b) Pancreatic juice

41) Collect organic wastes

Dig a small pit

Throw the wastes in the pit

- Cover the pit with a layer of soil
- Pour some water so that it is moist
- Using worms or vermicomposting
- Pot composting using leftovers of food and fruit peels

42) (a) Strawberry: runners (asexual reproduction method)
(b) Cassava: cuttings (asexual reproduction method)

43) Plasma

44) Inhalation (breathing in) or exhalation (breathing out)

45) Abstinence: not having sex before marriage.
Using condoms
Using contraceptive pills
Prolonged breastfeeding
Making informed choices
Choose good friends.
Avoid risky behavior such as drug abuse

46) Reproduction is the production of new individuals or offspring.

47) Avoiding **smoking**
Seeking immediate medical care in case of a respiratory problem.
Exercising regularly to strengthen respiratory muscles.
Avoiding inhaling unknown or dangerous substances or chemicals.
When spraying chemicals in the house or any other place, always wear protective clothing, for example, a gas mask.
Eating a balanced diet

48) Solid state or liquid state or gas state

49) Speakers of radios, television, electric bells, generators, telephones, computers, watches, compass

50) Renewable energy sources are those that cannot get finished. They can actually be recycled or reused. Examples include: Sunlight, Wind, Water or hydroelectric power
Non-renewable energy these refer to sources of energy that can get exhausted. They include fossil fuels such as petrol and natural gas.