

SCIENCE PLE 2021 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province District Sector School Level Pupil Year
/city

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PUPIL'S FULL NAME

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SECTION A: Attempt all questions. (50 MARKS)

- 1) What kind of toy or learning materials can you make from the following materials?
 - a) Paper _____
 - b) Clay _____
- 2) a) State any one material you use in the classroom to support your learning process

b) How do you take care of your learning materials?

- 3) Name the agricultural tools described below:
 - a) It is a plastic container with backpacks and spray guns.

b) We use this tool for collecting fallen leaves and levelling the soil.

- 4) Describe the use of each of the following tools:

a) Spanner

b) Hand saw

c) Bellow

- 5) a) Identity

i) Any one natural material used in the construction site.

ii) Any one masonry tool used in the construction site.

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

6) Use appropriate terms to complete the following statements:

- a) The angle of incidence is _____ to the angle of reflection when a ray of light is reflected by a plane mirror.
- b) The ray of light going from glass to air _____ away from the normal.
- c) _____ material is a material which allows light to completely pass through it.

7) a) Why is electricity important?

- i) _____
- ii) _____
- b) Prove that electricity may be dangerous when it is mishandled.

8) a) Provide any one non-metallic material

- b) Why are cooking utensils made of metal?

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

- a) A hoe is second class level.
- b) A simple machine enables people to do work with less effort and a greater speed.
- c) People should always be careful when using simple machines.

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

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

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

- 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.

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

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

Questions

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

ii) Determine the melting point of ice

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

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

14) Paint activity is used for _____

- a) Typing letters
- b) Painting
- c) Drawing color and editing
- d) None of those.

15) The process of writing a computer program is called _____

16) What do you understand by the term "email"? _____

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

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

18) What is a folder? _____

19) Give any 2 examples of general search engine.

20) Name any two popular programming languages for children.

21) Define the term sugar interface

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

23) Name any two diseases associated with water pollution.

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

- (i) Formation of image. _____
- (ii) Carrying image from the Eye to the brain. _____
- (iii) Changing the shape of the Lens. _____

25) Give examples of each of the following bones.

- a) Long bones _____
- b) Short bones _____
- c) Flat bones _____

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

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

Boys _____

Girls _____

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

b) Suggest the best way of controlling the spread of AIDS.

28) a) Give any three characteristics of living things

b) A cow and a bat are classified as mammals. To which class of animals do the tortoise and lizard belong?

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

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

(i) AIDS _____

(ii) Malaria _____

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

- (i) White blood cells. _____
- (ii) Red blood cells. _____
- (iii) Platelets. _____

32) Apart from having bright colors, state any other one characteristic of insect pollinated Flowers.

33) Apart from movement, give any other two functions of human skeleton.

34) a) Where in the digestive system do the following take place?

- (i) Absorption of digested food. _____
- (ii) Absorption of water. _____

b) What are the end products of digestion of:

- (i) Starch _____
- (ii) Proteins _____
- (iii) Fats _____

35) Give the function of the following plant parts:

- (i) Roots _____
- (ii) Stem _____

36) Complete the table below that compares insect pollinated and wind pollinated flowers

Insect pollinated flowers	Wind pollinated flowers
(i)	
(ii)	
(iii)	
(iv)	

37) a) Give the general name of blood vessels which carry blood away from the heart to various parts of the body.

b) Why does blood go to the kidney during circulation?

38) Suggest any two problems of early pregnancy to a school girl below 18 years.

39) Apart from the skin and the lungs name any other excretory organ.

40) Give any one reason why people like brick makers need to feed on carbohydrates.

SCIENCE PLE 2019 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

--	--

District

--	--

Sector

--	--

School

--	--

Pupil

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PUPIL'S FULL NAME

Sur name

:

SECTION A (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 _____

ii) When a light ray is incident on a plane mirror, it refracts _____

—

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

—

2) State any two uses of solar energy.

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.

b) Identify one mechanics tool and one blacksmith tool.

Mechanics tool _____

Blacksmith tool _____

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

5) a) Name any one agricultural tool.

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

6) Complete the statements below on magnetism.

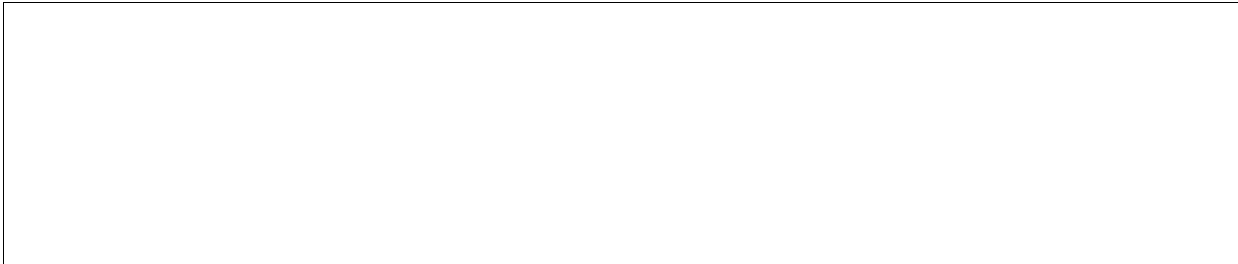
a) _____ is the region present on a magnet where force of attraction or repulsion acts.

b) The magnetic poles of a magnet are _____ and _____.

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

8)a) Draw an object that you can make using clay.

i) Drawing



ii) The name of the object drawn is

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

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

a) i) Write the formula for calculating the mass of gold.

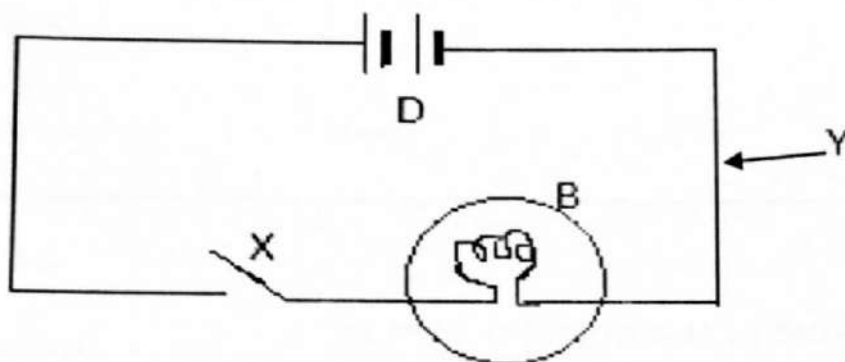
ii) Calculate the mass of gold and write its units.

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

i) Does this sample of gold sink or float if it is submerged into water?

ii) Justify your answer.

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



a) Name the component labelled **B**.

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

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

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

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

Saving data for later use are _____.

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 _____.

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

www.rra.gov.rwa is an example of _____.

A. Website B. Email C. Xo computer D. Laptop

For questions 13 to 16, answer True or False.

13) When using the Write activity, the typed text is automatically saved when you close _____.

14) You can find any kind of information using search engine _____.

15) CDs as well as DVDs are optical storage devices _____.

16) Scratch and Turtle art are two popular programming languages for kids

17) _____ is giving of objects its human characteristics like movement, sound, saying etc.

18) _____ disk is usually used to backup data.

A. External hard disk B. Memory stick

C. Memory card D. None of these

19) State any three geometric shapes used in graphics.

20) Explain the features of arithmetic operation.

21) _____ is used for painting and editing image colours.

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

23) Move the turtle forward with the number of pixels entered.

SECTION B: Attempt almost 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?

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

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

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

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

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

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

- 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?

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

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

- 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?

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

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

- 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:

- 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?

- A. People living with HIV and AIDS are going to die soon.
B. HIV and AIDS is a curse from God.
C. HIV is hot through sexual inter course
D. People living with HIV and AIDS are advised to eat small amounts of good at a time

34) _____ and _____ are not part of the alimentary canal but they play a role in the digestion of food.

35) a) The fusion of male and female reproductive cells forms _____

b) List down at least two functions of the placenta.

36) a) The reproductive part of a plant is the _____

b) In a flower, the male sex cells are known as _____ while the female sex cells are known as _____.

From question 37 to 41, answer True or False

37) Proteins are for growth and repair; they should therefore be given to children _____

38) Glucose is used to provide energy during exercise; it should not be given to young children _____

39) The circulatory system consists of the heart and blood vessels _____

40) HIV can be transmitted through blood when people share sharp instruments _____

41) Mosquitoes causes malaria _____

42) List four major functions of the skeleton.

43) Give five uses of water.

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

45) a) Pollution is _____

b) What are common sources of air pollution?

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

47) Match the items in list **A** with their function in list **B**.

List A

Red blood cells

Arteries

Valves

list B

stops bleeding when the skin is cut

carry oxygen around the body

carry blood away from the body

Platelets prevent back flow of blood in veins

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

49) Why should young girls avoid getting pregnant?

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SCIENCE PLE 2018 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

--	--

Sector

--	--

School

--	--

Pupil

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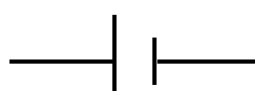

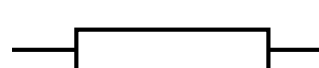
PUPIL'S FULL NAME

Sur name

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SECTION A: Attempt all questions. (50 marks)

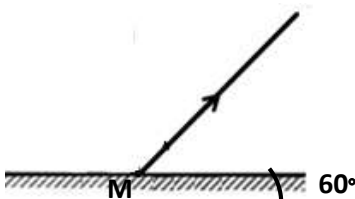
1. State any one form of;
 - a. energy _____
 - b. renewable energy source _____
2. Complete these sentences
 - a. The area of a magnet where the magnetic force is strongest is called the magnetic _____
 - b. An instrument which uses magnets to show direction is known as _____
3. Draw a line from each circuit symbol and link it to the electrical component it represents.

Circuit symbol	Electrical component
	stor
	cell
	ch

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 then sent back into the same medium is known as _____

- 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.
- ii. Find the value of the angle of incidence.

5. Name any:
 - a. agricultural tool

b. danger of the misuse of agricultural tools.

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



b. What is the "spirit level tool" used for?

7. Write any two masonry tools.

i. _____

ii. _____

8. Mention any two materials used to make toys.

i. _____

ii. _____

9. a. The person who repairs machines is called:

b. The person who uses a tool known as evil is called:

10. Use True or False to answer the following:

a. A screw driver isn't an example of a simple machine

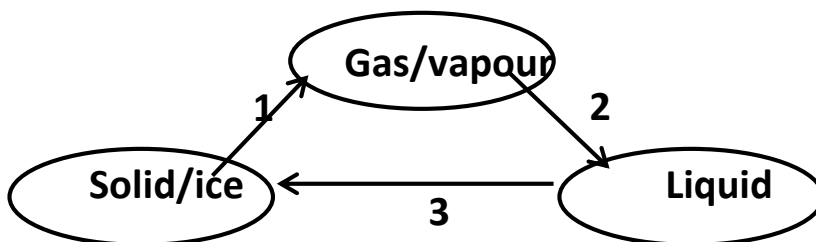
b. For a lever to be first class lever, the fulcrum needs to be between the load and the effort.

c. A simple machine is a tool that makes the work easier.

11. Calculate the relative density of each substance and complete the table given below.

Material	Density kg/m ³	relative density
er	0	
t	20	

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



1. _____

2. _____

3. _____

12. The physical parts of a computer are called

13. A small picture that represents a folder, program or other things is called _____
14. If you _____ a document from the journal, it will be completely lost.
15. The activity you are working on is automatically saved and can be accessed from the _____
16. Name three ways in which you can start using the write activity
- _____
 - _____
 - _____
17. What do the following terms refer to as used in scratch?
- sprite _____
 - animation _____
18. List any two popular programming languages for kids.
- _____
 - _____
19. What is the use of paint activity?
- _____
20. List four functions of scratch sound editor.
- _____
 - _____
 - _____
 - _____
21. What is a search engine?
- _____
22. Explain the uses of the following commands.
- Back _____
 - Left _____

SECTION B: ANSWER ALL QUESTIONS (50 MARKS)

23. a. The characteristics for Movement is also called:
- _____
- b. Give four main reasons why animals move.
- _____
 - _____
 - _____
 - _____
24. Using an arrow (→), match each animal in A with the correct group to which it belongs in B.
- | | |
|-------------------|------------------|
| A (animal) | B (group) |
| Chameleon | mammal |
| Toad | reptile |
| Ostrich | bird |
| Bat | amphibian |

25. List down two similarities between plants and animals.

- i. _____
- ii. _____

26. 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. _____
- ii. _____
- iii. _____

b. What would happen to plants if there were no insects?

27. A farmer cuts down a forest to grow potatoes.

a. Do you agree with his action?

b. If yes give reasons to support your answer

If No, support your answer

28. Match using an arrow, the items in Column A against those in Column B.

Column A

- Sepal
- Petal
- Stamen
- Carpel

Column B

- female reproductive part.
- protects the inner part of the flower.
- attracts insects
- male reproductive parts.
- receive pollen grains.

29. Complete the table below.

Parts of the circulatory system	functions
ns	
at	
ries	

30. a. Name the two types of pollination in flowering plants.

- i. _____
- ii. _____

b. Write down any two agents of pollination.

- i. _____
- ii. _____

31. a. Give two types of germination.

- i. _____
- ii. _____

b. Apart from moisture, state any other condition necessary for seed germination.

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

i. _____

ii. _____

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

c. What gas is given off during this process?

33. a. Which type of blood vessels return blood to the heart?

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

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

d. Give any one waste material carried by blood.

34. a. Which organ removes urine from the body?

b. To which body system does the organ that removes urine from the body belong?

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

35. a. Name the germ that causes HIV/AIDS.

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

c. State the name of the insect that transmits malaria parasite from one person to another.

36. Which part of the body is affected by each of the following diseases?

a. Bilharzia _____

b. Scabies _____

c. Trachoma _____

d. AIDS _____

SCIENCE PLE 2017 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

--	--

District

--	--

Sector

--	--

School

--	--

Pupil

--	--	--

PUPIL'S FULL NAME

Sur name

:

SECTION A: Answer all questions. (50 marks)

1. What is a "water level" used for?

2. Name any two dangers of stagnant water.

3. Why is a moon not regarded as a natural source of light?

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

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

6. Copper wires are used in electricity because: (Give two)

7. Why is the air of the atmosphere important? (Give two)

8. Name any two properties of solids.

9. What is meant by the term "mass" of a body?

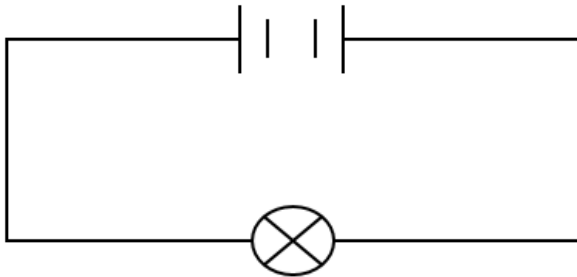
10. A dry piece of wood floats on water because:

11. State any one law of reflection of light.

12. What is meant by the term "refraction" as applied to an oblique incident ray of light travelling from air through water?

13. Mention any two methods of heat transfer.

14. Below is a diagram of a simple electric circuit. Why does the lamp not light?



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

16. Mention two uses of electricity in homes.

17. Name two sources of sound.

18. Give two examples where sound is stored and is heard whenever it is needed.

19. Name any two types of simple machines.

20. State any two ways of purifying dirty water.

21. How can you change the state of ice to liquid state?

22. Name two types of shadows.

23. Heat energy is used for: (Give two)

24. Two properties of magnets are:

25. What is a "magnetic compass"?

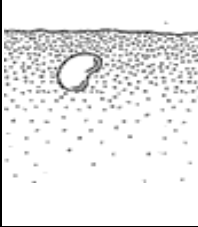
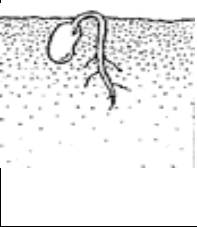
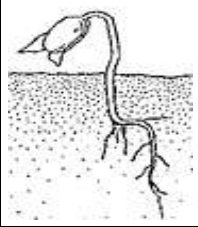
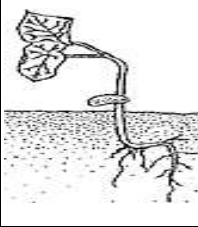
SECTION B: Answer all questions. (50 marks)

26. Complete the table by filling in the missing words.

An example is done for you on the first row.

Deficiency of (lack of)	Disease
Proteins	Kwashiorkor
_____	Rickets
Iodine	_____
_____	Beri beri
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.

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

c. How many centimetres (cm) has the bean plant grown from stage B to stage D?

28. a. The reproductive part of a plant is the

b. Give two uses of flowers in the environment.

29. a. The difference between pollination and fertilization is that;

Pollination is

Fertilization is

b. The two types of pollination are:

c. Fill in the blanks with the appropriate words:

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:

Organs	Functions
Ureter	where urine is produced.
Kidney	brings urine from the kidneys to the bladder.
Urethra	where urine is stored.
Bladder	where urine is eliminated from the body.

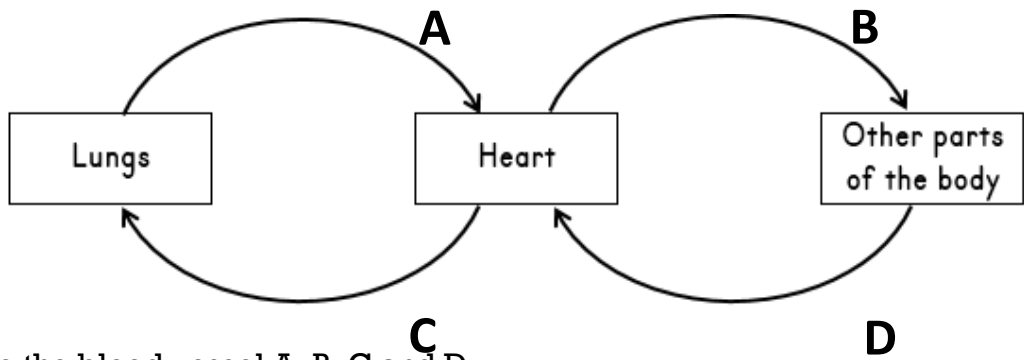
31. a. Name two types of blood circulation that happen in the human body.

b. Do all arteries carry oxygenated blood?

c. Explain your answer given in (b) above.

d. Give two things which happen to blood from the heart when it reaches the lungs.

32. The diagram below shows the circulatory system of a human. The arrows represent the direction of the flow of blood in the body.



Name the blood vessel 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

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

34. a. What is "suffocation"?

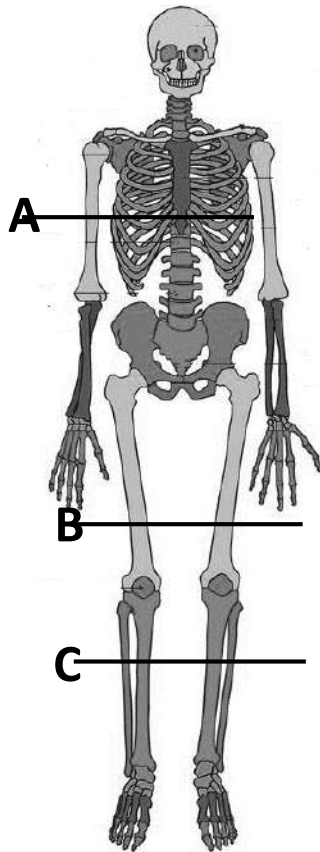
b. How can you help a person who is suffocating?

c. Name one disease caused by smoking.

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

b. Give two ways to keep proper food hygiene.

36. The diagram below shows the human skeleton.



a. Name the bones A, B and C.

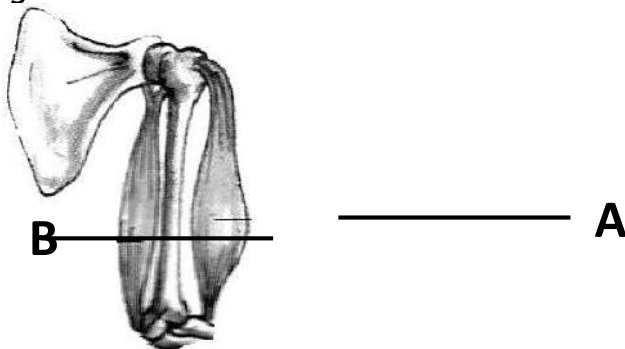
A _____ B _____

C _____

b. Give one function of the human skeleton.

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

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



a. Name the muscles A and B.

A _____ B _____

b. What happens:

i. to muscle A when the arm is bent?

ii. to muscle B when the arm is bent?

SCIENCE PLE 2016 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

District

Sector

School

Pupil

PUPIL'S FULL NAME

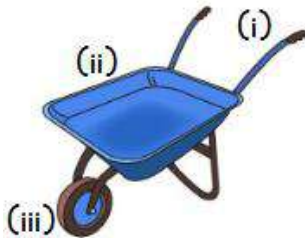
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SECTION A: Answer all questions. (50 marks)

1. a. What is a simple machine?

- b. Name the parts of a simple machine below.



- i) _____
ii) _____
iii) _____

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

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

3. Write two sources of artificial light.

4. Why do we wear opaque clothes?

5. Which form of energy is commonly used to:

a. Make cars move? _____

b. Enable human beings to see? _____

6. State any two properties of metals.

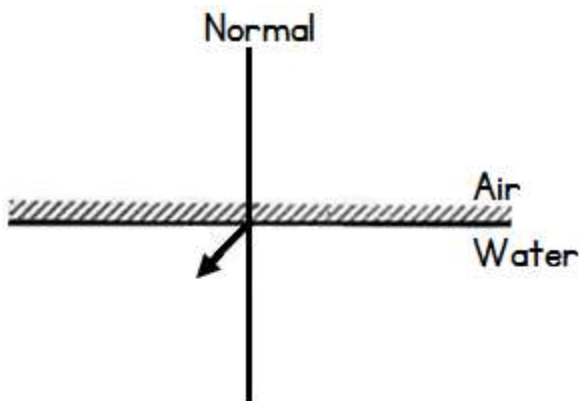
7. State any two possible dangers of wind.

8. State any two properties of a liquid.

9. Calculate the mass of a body with density 0.9g/cm^3 and volume 20cm^3 .

10. Why does a stone sink into water?

11. Complete the diagram below and label the incident ray, angle of incidence and angle of refraction.



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

13. Draw a simple electric circuit composed of two cells in series, a lamp and a switch.

14. What is the use of each of the following in an electric circuit?

a. A dry cell _____

b. A bulb _____

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

16. What is an echo?

17. Why is music a pleasant sound to hear and noise an unpleasant sound to hear?

18. Why is pond water not good for drinking?

19. How do you change water vapour to liquid water?

20. What is a penumbra shadow?

21. Which form of energy helps us to hear?

22. Name any two substances which are attracted by a magnet.

23. If you have a mixture of iron filings and sand, how can you separate them?

SECTION B: ANSWER ALL QUESTIONS (50 MARKS)

24. a. What is meant by communicable diseases?

b. Give any two examples of communicable diseases.

25. a. What is meant by sexually transmitted infections (STIs)?

c. Name any two ways of preventing the spread of STIs.

26. a. What is a balanced diet?

b. Name any two sources of vitamins.

c. What is a deficiency disease?

d. A child that lacks calcium and phosphorus is likely to suffer from

27. Digestion of food starts in the (a) _____ and ends in the (b) _____.

28. Name the digestive juices found in the:

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 digestive juices.

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

i. Male sex cells _____

ii. Female sex cells _____

b. The process by which an ovary releases an ovum after every 28 days is known as _____

31. a. State the four main components of blood.

b. _____ is a component of blood responsible for blood clotting.

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

b. List down any four functions of the skin.

33. a. Animals move in order to:

b. Give one example of animals that;

- i. walk _____
- ii. crawl _____

34. a. The process by which plants lose water into the atmosphere is known as

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

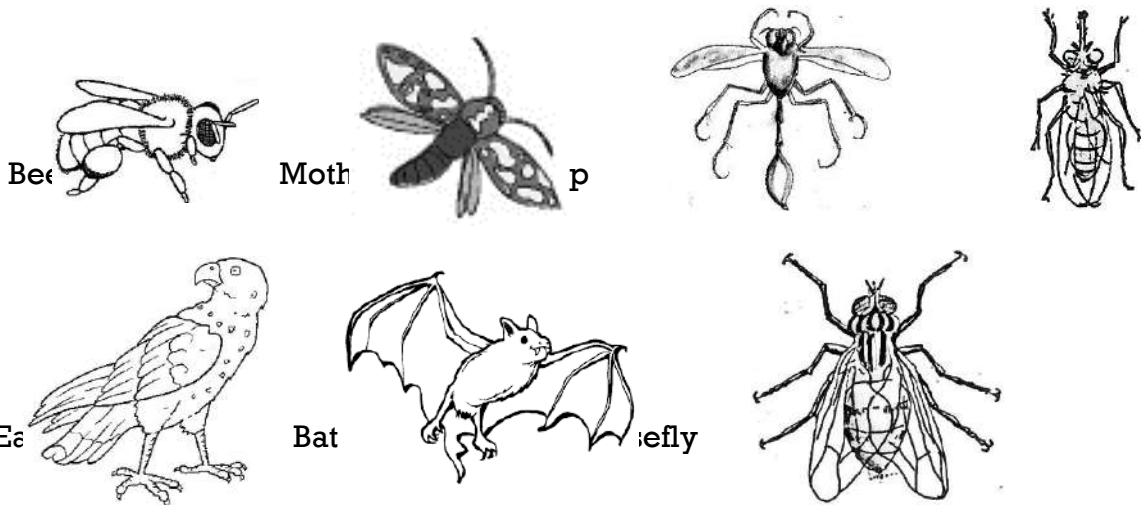
35. a. Harmful substances that pollute water are known as

b. State four things that can pollute water.

36. After fertilisation has taken place in plants, the ovules grow to become

_____, while the ovary becomes _____

37. Classify the organisms below into three groups.



- a. _____
- b. _____
- c. _____

SCIENCE PLE 2015 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

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Sector

--	--

School

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Pupil

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PUPIL'S FULL NAME

Sur name

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SECTION A: ATTEMPT ALL QUESTIONS (50 MARKS)

1. Name any one:

a. Carpentry tool _____

b. Agricultural tool _____

2. a. Mention one danger of stagnant water

b. What is the use of terraces?

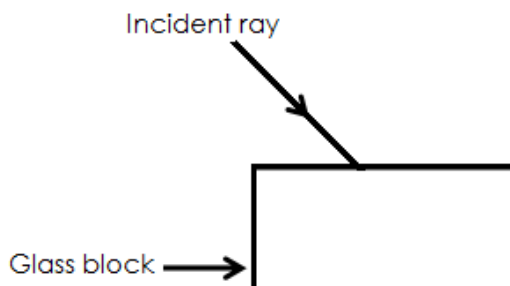
3. a. What is a simple machine?

b. Name one type of a simple machine.

4. a. Give one source of artificial light.

b. Which type of surface reflects light?

5. The diagram below shows a ray of light travelling from air through a glass prism.



Complete the path of the light through the glass block.

6. When is the solar eclipse formed?

7. Give two types of substances that burn.

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.

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

10. Explain how water at room temperature changes to ice.

11. The mass of a body is 60g and its volume is 15cm^3 . Calculate the density of the body.

12. The table below shows densities of some materials.

Material	Densities (kg/m^3)
Copper	8,900
Water	1,000
White spirit	850

a. Which material sinks in water?

b. Which material does not sink in water?

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

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

15. Mention any two electrical machines used in homes.

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

17. Give one way of producing sound.

18. Give two ways of storing sound.

19. Why is distant sound heard clearly at night than during the day?

20. By which method does heat from the sun reach the earth?

21. Why do people wear sweaters on a cold day?

22. Why are saucepans good for cooking food?

23. Complete the following sentence.

Like poles of a magnet _____ and unlike poles of a magnet

24. Fill in the missing words in the following sentence.

When a bar magnet is freely suspended in the air, it always faces in

_____ direction.

25. Write one use of a magnet.

SECTION B (50 marks)

26. Name at least two diseases associated with water pollution.

27. a. What do the words HIV and AIDS stand for?

HIV _____

AIDS _____

b. How can we avoid contracting HIV and AIDS?

28. Write down any three methods of purifying water.

29. Some bones in a human being are longer than others. Give three examples of such long bones.

30. a. Give three reasons to explain why food should be cooked.

b. What are final products of digestion of the following food substances?

i. Starch _____

ii. Proteins _____

iii. Fats _____

31. a. What are fertilisers?

b. Give the main types of fertilisers.

32. Using an arrow, match items in group A with those of B below.

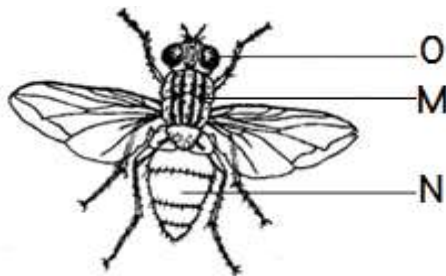
Group A

- Heart
- Kidney
- Skin
- Lungs
- Brain

Group B

- sensory organ
- memory
- carbon dioxide
- circulation of blood
- urine

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



a. How many body parts does this insect have?

b. Name the parts marked:

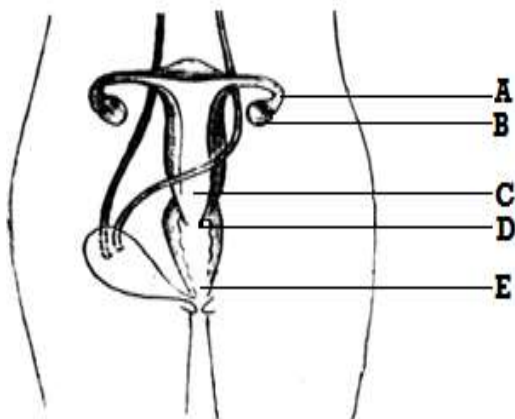
M _____
N _____

c. What is the use of part marked O to the housefly?

d. Where does a housefly lay its eggs?

e. How is this housefly dangerous to us?

34. The diagram below shows the female reproductive system.



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 acid. What is the use (function) of;

a. Gastric juice? _____

b. Hydrochloric acid? _____

36. a. Name two things involved in sanitation or hygiene.

b. Latrines should be constructed at least 10 metres from the living house. Give two reasons for this.

37. In the spaces below, draw an example of;

(i). Simple leaf

(ii). Compound leaf

b. State any two uses of leaves to plants.

c. State any one use of leaves to us.

SCIENCE PLE 2014 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

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Sector

--	--

School

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Pupil

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PUPIL'S FULL NAME

Sur name

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SECTION A: ATTEMPT ALL QUESTIONS (50 MARKS)

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

b. Why is a saw suitable tool for cutting wood?

2. a. One way of protecting the environment from rain water is:

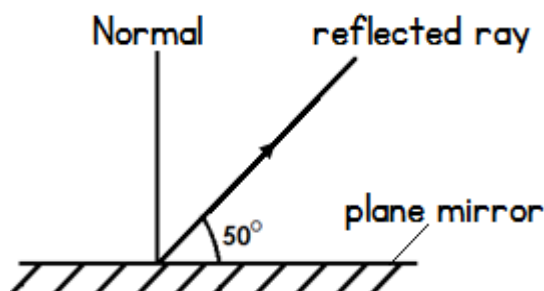
b. One danger of stagnant water is:

3. Complete the following sentences:

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

b. The main source of natural light on earth is:

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



a. Draw an incident ray on the diagram.

c. What is the size of the angle of reflection? _____

5. a. When is the lunar eclipse formed?

b. An umbra shadow is the

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

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

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

8. a. Write one difference between a metal and a non-metal.

b. Why are electric wires made of copper?

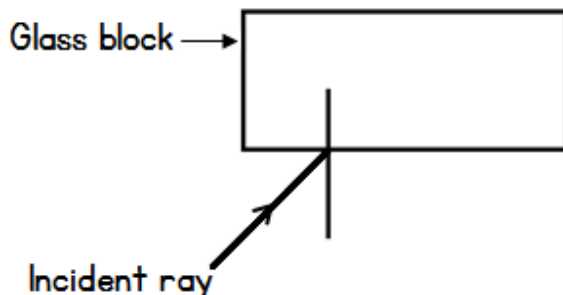
9. Air of the atmosphere is composed of many gases.
a. Which of these gases supports burning of wood?

b. Which gas puts off fire from burning wood?

10. a. A stone sinks in water because

b. What is the meaning of relative density of a substance?

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



12. a. By which method does heat travel through a liquid?

b. Which liquid is a good conductor of heat?

13. Draw a simple electric circuit composed of: one dry cell, connecting wires, a switch and a lamp bulb.

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?

b. Why are cables (electric wires) used?

15. Give two uses of electricity.

16. It is bad to touch a switch with wet hands because

17. Give an example to prove that:

a. sound travels through water

b. sound does not travel through very hard surfaces.

18. a. Can sound be stored?

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

19. Why is a wheelbarrow used to carry heavy weights? (Give two)

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

21. a. Lake water is not clean for drinking because

b. How is lake water made clean for drinking?

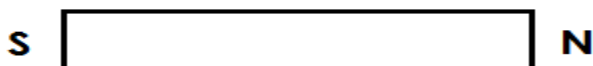
c. Name one disease caused by drinking dirty water (i.e lake water, stagnant water, etc)

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

23. a. What is a magnet?

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

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



25. Give two uses of a magnet.

SECTION B: ATTEMPT ALL QUESTIONS (50 MARKS)

26. Three respiratory diseases are

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

b. The best food for a baby of less than eight months is

28. a. The two types of germination are

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

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?

b. What food nutrients are lacking in family A?

c. Which family has a balanced diet?

30. One reason which shows that animals and plants depend on each other is that

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

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

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

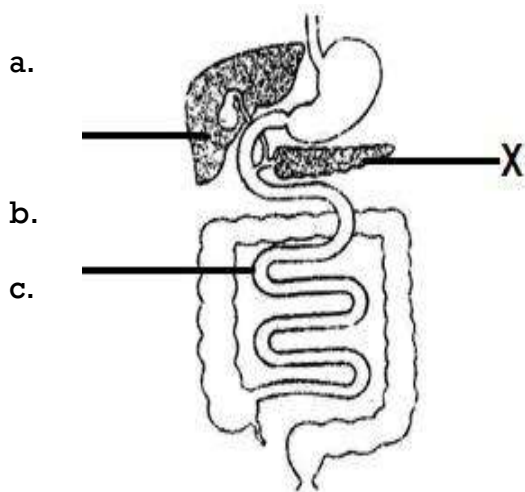
A	B
Tilapia	Rat
Frog	Goat
Crocodile	Lion
Hen	Whale

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

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

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

34. The diagram below shows part of the alimentary canal of a human being. Use it to answer the following questions.



Name parts:

X _____

Y _____

W _____

A process that takes place in the part marked Y is

One use of the part marked X is

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

a. AIDS

i. _____

ii. _____

b. Malaria

i. _____

ii. _____

36. a. An earthworm is called an invertebrate because

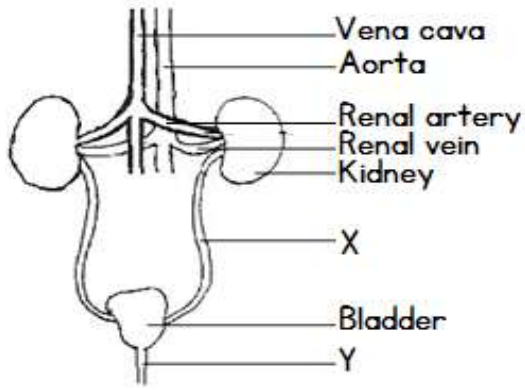
b. One main use of a human skeleton is:

37. a. All arteries carry oxygenated blood except

b. All veins carry deoxygenated blood except

38. The structures of a leaf of a plant that help in the process of transportation are

39. The diagram below is of a human urinary system.



a. Name the parts labelled X and Y

X _____

Y _____

b. The bladder is used for

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

40. a. STDs in full is

b. Two examples of STDs are

41. Knowledge of science and technology helps human beings in the following ways:

SCIENCE PLE 2013 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

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Sector

--	--

School

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Pupil

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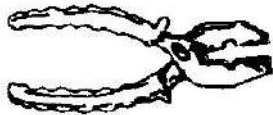
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SECTION A (50 MARKS)

1. The tool below is used in mechanics.



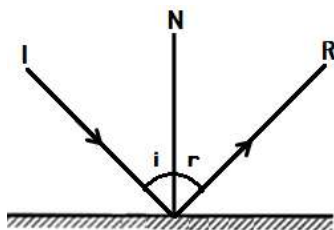
This tool is called _____ and is used to _____ or _____ the bolts.

2. Why does a piece of wood float on water while an iron nail sinks to the bottom of water?

3. Two ways through which lake water is made dirty are:

4. The moon light at night comes from

5. The figure below shows a ray of light being reflected by a plane mirror.



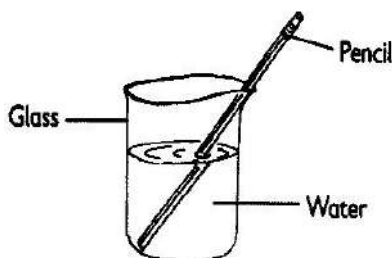
Which is

- (a). The incident ray?

- (b). The angle of reflection?

6. Use the figure in question 5 above and state the relation between angle i and r .

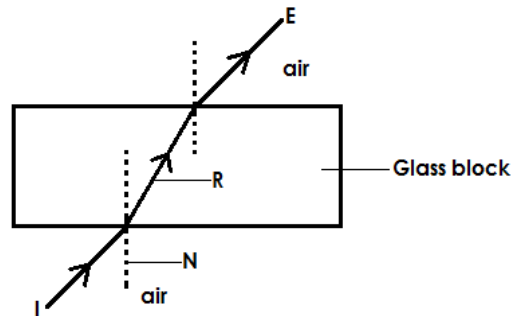
7. A pencil is put in water. See figure below. The pencil appears bent.



- (a). How does the pencil appear when it is removed from water?

- (b). The pencil inside the water appears as if it is bent because

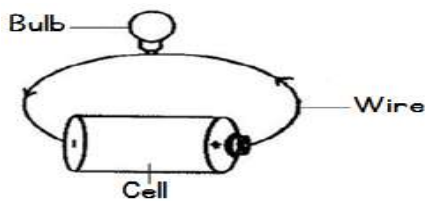
8. Light rays bend or change direction when they move from water into the air. This bending of light rays as they move from water to the air is called _____ of light. The speed of light in _____ is not the same as the speed of light in the air.
9. The figure below shows a ray of light travelling from the air through a glass block and then to the air.



The name of

- (a). ray R is _____
- (b). ray E is _____

10. The figure below shows a complete electric circuit.



- What is the use of:
 . the cell? _____
 . the wire? _____

11. Mention any two dangers electricity can cause in homes.

12. In a house which has electricity you can find switches and sockets fixed on walls. What is the use of:

- (a). Switches _____
- (b). Sockets _____

13. Mention any two ways to avoid dangers caused by electricity.

14. Electricity produced by running water is called _____

15. The type of energy that enables us to hear is called _____ this energy is produced by _____ bodies.

16. Does sound travel through

- (a). liquids? _____
- (b). vacuum? _____

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

18. Water can exist in three states. How can you change water from a liquid to a gas state?

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

(a). A liquid has a fixed volume. _____

(b). A gas has a fixed volume _____

20. Two methods of heat transfer from a hot body to a cold place are

21. (a). The method of heat transfer from the sun to the earth is:

(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

22. We cook food in saucepans which are made of aluminium metal because

23. 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?

24. (a). Complete this equation: $MASS = DENSITY \times$

(b). The unit of density is _____

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

SECTION B: Answer all questions

26. (a). A germ is

(b). Name any two types of germs

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

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

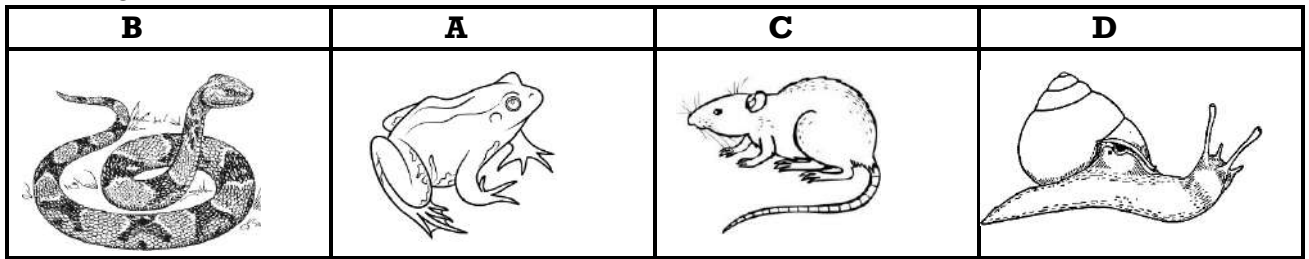
(b).(i). A balanced diet is

(ii). State components of a balanced diet.

28. (a). Two functions (uses) of proteins to living organisms are:

(b). Why should children have more proteins than adults?

29. The diagram below shows different animals.



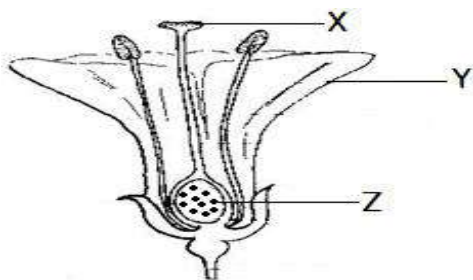
(a). In which ways are animals A, B and C similar?

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

(c). Animal A belongs to a class of animals called

(d). Animal D protects itself against enemies by

30. The diagram below is of a flower.



(a). The part labelled X is called

(b). The use of the part labelled Y to the flower is

(c). What does the part labelled Z become after fertilization?

31. (a). What are Sexually Transmitted Diseases (STDs)?

(b). Give any three examples of STDs.

(c). One way in which STDs can be controlled is

32. (a). What is the shape of a kidney?

(b). Two main functions of a kidney are:

33. Three ways in which health problems can be solved without the use of drugs are:

34. (a). The ear is used for

(b). Three main parts of the ear are:

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

35. 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?

(b). Give reasons for your answer above.

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

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

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

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

(i). Boys

(ii). Girls

SCIENCE PLE 2012 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

--	--

Sector

--	--

School

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Pupil

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PUPIL'S FULL NAME

Sur name

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SECTION A (50 Marks)

1. The tool below is used in mechanics.

(a). What is the name of the tool?

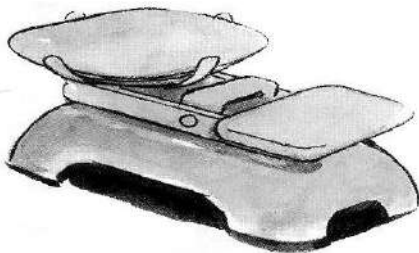


_____) This tool is used to;

2. Running water on hillsides causes soil erosion. How can this soil erosion be prevented? (Give two ways)

3. Mention two dangers that stagnant water can cause.

4. Below is an instrument used in everyday life.



(a). What is this instrument called?

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

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

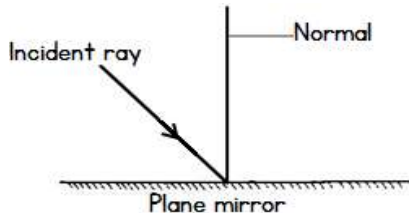
(a). Opaque? _____

(b). Transparent? _____

(c). Translucent? _____

6. The mass of a stone is 200g and its volume is 80cm³. Calculate the density of the stone.

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.

8. Water exists in three states. What are the common names of these states?

9. Mention two ways of making water from a lake safe for drinking.

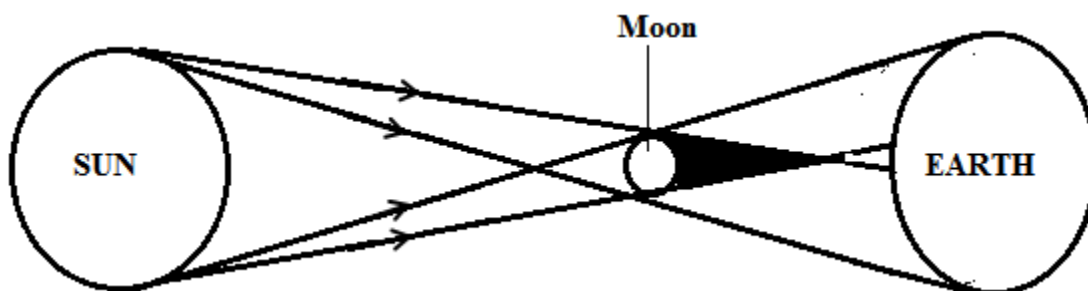
10. If you have meat you want to keep for more days without getting spoilt, which two ways can you use to preserve it?

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

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

(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?

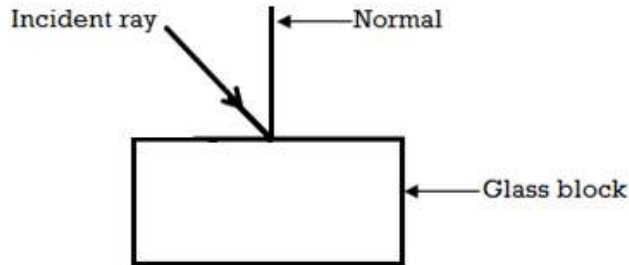
13. Below is an eclipse of the sun by the moon. The tip of the umbra has failed to reach the earth's surface. What is the name of the type of eclipse?



14. An echo is a property of sound called?

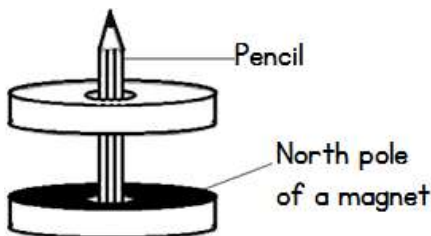
15. Modern technology has made it possible to store sound. Give two ways of storing sound.

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.



17. A magnet strongly picks copper. Is this statement correct?

18. The diagram below shows two circular magnets.

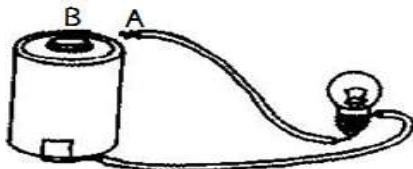


Complete the following sentence:

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

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

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



- i). Can the lamp indicated in the diagram give light?

(b). Explain your answer.

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

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

21. Which different methods can you use to cook potatoes? (Give any two)

SECTION B (50 Marks)

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

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

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

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

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

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

24. (a). Three characteristics of birds are;

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

(c). A cow is called a ruminant because;

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

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

25. (a). The part of the flower that receives pollen grains is;

(b)(i). The female part of a flower is called;

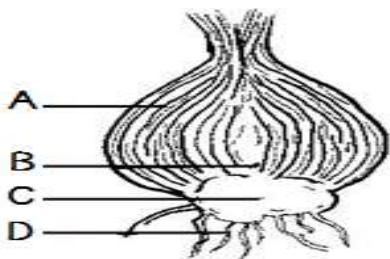
(ii). The parts that make up female part of a flower are;

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

Insect pollinated flowers	Wind pollinated flowers

(b). Fertilization is

27. The diagram below is of an onion



Name the parts A, B, C and D.

A _____

B _____

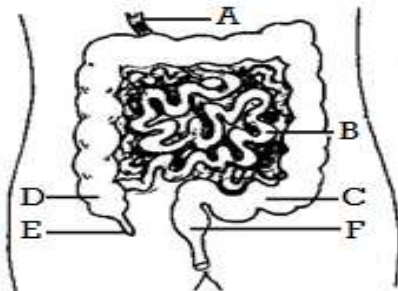
C _____

D _____

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

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

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



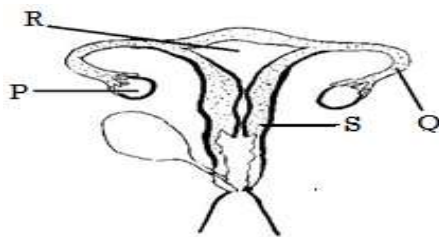
(a). Name the parts marked A, B, C, D, E and F.

- A _____
- B _____
- C _____
- D _____
- E _____
- F _____

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

(c). How is part F useful?

30. The diagram below shows the female reproductive organs.



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

- P _____
- Q _____
- R _____
- S _____

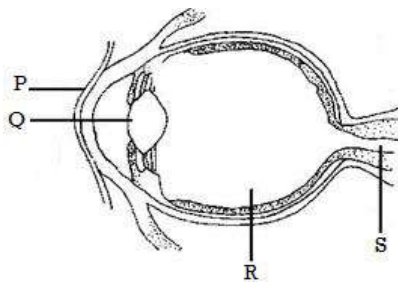
(b). What is the function of part P? _____

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

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

(e). How is such fertilization different from that in amphibians (frogs, toads, etc)?

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?

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

SCIENCE PLE 2011 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

--	--

Sector

--	--

School

--	--

Pupil

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PUPIL'S FULL NAME

Sur name

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SECTION B: (50 MARKS)

1. Name any three tools used by a farmer.

2. Why is the air of the atmosphere important for lives? Give two reasons.

3. What is a magnet?

4. (a). Give two reasons to show why light from the sun is important.

(b). Why are white clothes more comfortable to wear on a hot day than dark clothes?

5. (a). Name and draw a labelled diagram of an instrument used to measure body temperature of people.

(b). The instrument is called a _____

6. State three methods of heat transfer.

7. Why do we use blankets to cover ourselves at night?

8. (a). Does sound travel through solids? Explain your answer.

(b). A vacuum is a space completely empty of matter.

(i). Does sound travel through a vacuum?

(ii). Does light travel through a vacuum?

(iii). What would happen to a balloon full of air if it were taken in a vacuum?

Write **True** for the correct statement or **False** for the wrong statement for questions

9. A stone sinks in water because it is hard.

10. Light travels through translucent objects.

11. Sound travels through water.

12. Electricity is a manmade source of energy.

13. Metals are poor conductors of heat.

14. Complete the table below:

Mass (g)	Volume (cm ³)	Density (g/cm ³)
18	_____	0.9
_____	3	13.2

(a). How are trees important to the environment? (Give two ways)

(b). Mention two uses of timber.

15. Electricity in homes makes everyday life good. Mention three ways by which electricity makes life good.

16. (a). Why do we use soap to wash clothes?

(b). The clothes are spread for drying after washing them.

17. Explain this drying up process.

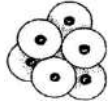
18. (a). Which two forms of energy does lightening have?

(b). Explain why light is seen before sound is heard during lightening.

19. Give any two reasons why First Aid is given.

20. State one reason why water is important in our diet.

21. Which animal lays such eggs shown below?



22. State one way of reducing friction.

23. What type of family has the following people; husband, wife, daughter and nephew?

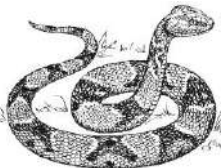

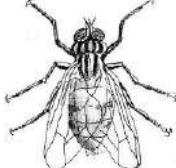

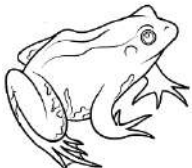
24. State one reason why breast milk is considered the best food for babies.

25. (a). Give the main use of leaves to a plant.

(b). How do we call the green colour found in plants?

SECTION B (50 Marks)

26. Use the diagram below to answer the questions that follow.

Snake	Bat	Fly	Bird	Frog
				

(a). Which of the above animals lays eggs?

(b). Which of the animals are cold blooded?

(c). Which of these animals is a mammal?

27. (a). How do we call a reproductive cell of a;

(i). Woman? _____

(ii). Man? _____

(b). How are the cells in (a) above different in shape and size?

28. Fill in the table below with the example of each given group.

Group of animals	Examples
Insects	_____
Amoeboids	_____
Protozoans	_____
Platyhelminths	_____
Roundworms	_____
Segmented worms	_____
Arthropods	_____

29. Answer the following questions using True (T) or False (F)

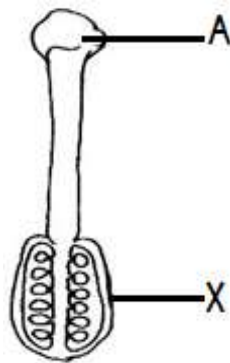
(a). The virus that causes AIDS can be transmitted through sexual intercourse.

(b). Mosquitoes transmit the virus that causes AIDS.

(c). An infected pregnant woman can pass on AIDS to the Child.

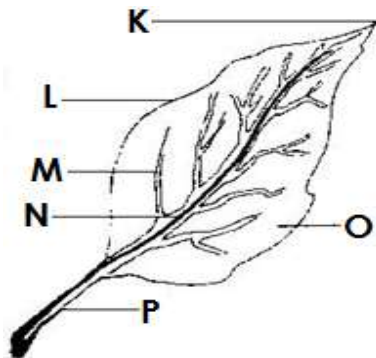
(d). Although AIDS is in all parts of the world, it no longer kills people.

30. The diagram below shows part of a flower.



- (a). The part marked X develops into _____ after pollination?
 (b). How is the part marked A useful to the flower?

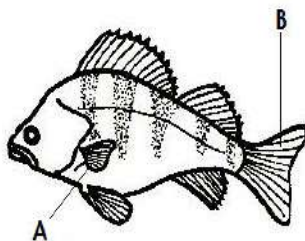
31. The diagram below is of a leaf.



Name the parts marked K, L, M, N, O and P

- K _____
 L _____
 M _____
 N _____
 O _____
 P _____

32. The diagram below is of a Tilapia fish. Use it to answer the questions that follow



- (a). Name the part labelled A.

 (b). How is part E useful to the fish?

(c). Which parts of the fish helps it to protect itself in water.

(d). What is the importance of eating fish?

33. (a). What is plasma?

(b). Name the blood vessel that carries blood:

(i). From the liver to the Vena Cava.

(ii). From aorta to the stomach and intestines.

(iii). From the lungs to the heart.

(c). What is the name of the Vein that connects the liver to the small intestines?

(d). What does the vein carry to the liver?

34. Name the three types of teeth found in human beings and give the functions of each.

(a). Type 1 _____ Function _____

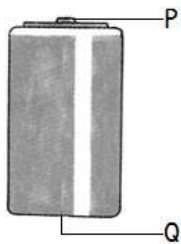
(b). Type 2 _____ Function _____

(c). Type 3 _____ Function _____

35. (a). A balanced diet is one that

(b). What does one have to consider when preparing a balanced meal?

36. The diagram below is of a dry cell



(a). Name parts P and Q.

P _____

Q _____

(b). What form of energy does a dry cell;

Store? _____

Produce? _____

(c). What type of electricity does a dry cell produce?

(d). Name any one device that uses dry cells. _____

SCIENCE PLE 2010 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

--	--

Sector

--	--

School

--	--

Pupil

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PUPIL'S FULL NAME

Sur name

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SECTION A: (50 MARKS)

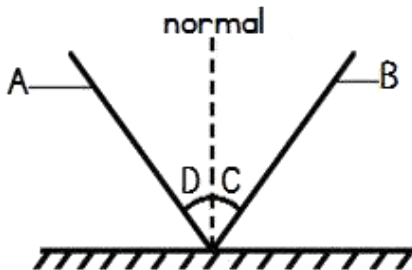
1. Who uses a metal called a water level?

2. Is the moon a source of light? **YES** or **NO**.

3. Give an example of a man made source of light.

4. Name any liquid fuel and mention where it is used.

5. The diagram shows a flat mirror reflecting a ray of light.



- Ray A is called _____
- Ray B is called _____
- Angle C is called _____
- Angle D is called _____

6. Why are windows of houses made of transparent glasses?

7. Where does the light from a torch come from?

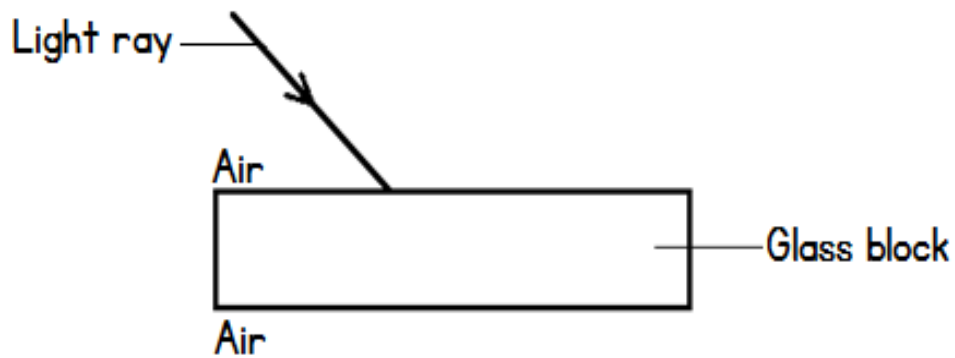
8. (a). Why does tea in an ordinary aluminium kettle cool down fast?

- (b). By which method does heat from the sun reach the earth?

From question 9 to question 12 answer **TRUE** or **FALSE**.

9. Air has no mass. _____
10. Water has no colour. _____
11. Stones have greater density than sand. _____
12. When ice is heated its volume decreases. _____

13. The diagram shows a ray of light entering a glass block. Complete it.



14. Water pollution is caused by:

15. Select two materials from among: **dry wood, iron bar, glass rod, aluminium rod** which are good conductors of heat.

16. (a). State two uses of electricity in hospitals in Rwanda.

(b). Mention any two dangers of electricity.

17. (a). Does sound travel through water? YES or NO.

(b). Give an example to support your answer in 17 (a).

18. Which of the following materials are attracted by a magnet: **copper, steel, carbon, iron?**

19. (a). Air is composed of many gases. Name any two of the gases in air.

(b). Which gas puts off the flame of a burning candle?

20. (a). Sound from a distant object is heard louder during the night than during the day. Why?

(b). Why is it that on a bright day the sky appears blue?

21. (a). What is the unit of density?

(b). The mass of a body is 18 g and its volume is 12cm³. Find the density of the body.

22. (a). How many legs does an insect have?

(b). Where are the legs of an insect attached?

(c). Why is a spider not considered to be a true insect?

23. (a). What is pollination?

(b). Give two names of animals which carry out pollination.

24. (a). In what ways do plants depend on animals for growth? (Give two ways)

(b). Plants make their own food. What do plants use to make their own food? (Give any two)

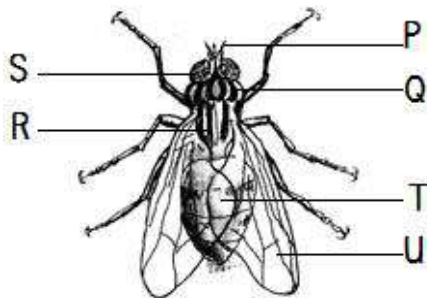
25. (a). How does an insect breathe?

(b). Give two diseases spread by the housefly.

26. Give at least two ways in which forests can be conserved.

SECTION B: (50 MARKS)

27. The diagram below shows a housefly.



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

- Q _____
- R _____
- S _____
- T _____

(b). What is the function (use) of part P?

28. (a). What two activities can be carried out at school to destroy mosquitoes?

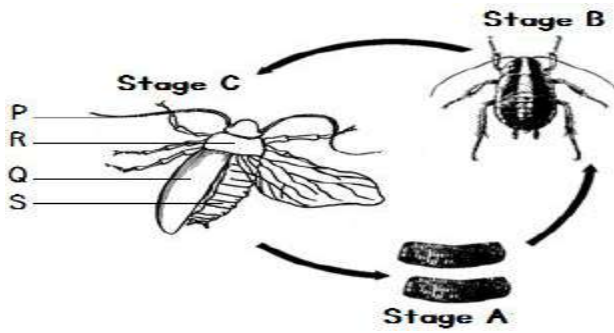
(b). Name the mosquito that spreads malaria.

(c). What causes malaria?

29. (a). Name any two water borne diseases caused by bacteria.

(b). How can water borne diseases be controlled?

30. The diagram below shows stages of development of a cockroach.



(a). Name stages A, B and C.

A _____

B _____

C _____

(b). Name the parts marked P and S.

P _____

S _____

(c). What feature does stage C have that makes it different from stage B?

31. An elderly man has lost all his molar teeth. Identify two feeding problems he is likely to experience.

32. (a). Lungs are to man as _____ are to tadpoles.

(b). Give two ways by which an adult frog breathes.

(c). Explain why a fish is able to swim?

33. (a). Give two organs of blood circulatory system.

(b). What name is given to the smallest blood vessel in human body?

(c). What is the largest blood vessel in the human body?

34. Salmonella is an infectious disease of the chicken. What are the signs of Salmonella? (Give two).

35. (a). Give two uses of oxygen:

(b). What is the use of carbon dioxide in plants?

36. The air we breathe can be made dirty by different pollutants. Give at least two sources of pollution.

37. There are several reasons for processing food. Give only two reasons why food should be processed.

38. What is the role of the following organs during the digestion of food:

Small intestines? _____

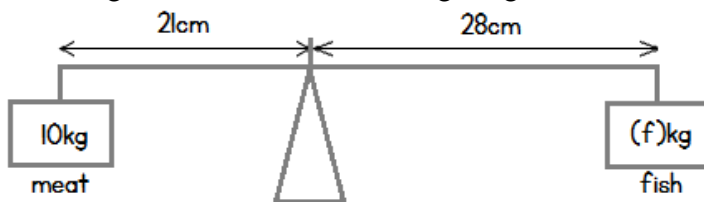
Pancreas? _____

39. (a). Name one method you can use to prevent HIV/AIDS.

(b). State any two ways through which the spread of HIV/AIDS can be controlled.

(c). Which type of cells does the HIV virus attack?

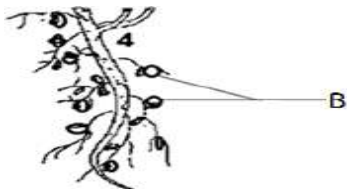
40. The diagram below is of a weighing scale.



(a). If meat (10kg) and fish (f kg) balance the scale, find the mass of fish.

(b). How is a car jack useful to people?

41. The diagram below shows roots of a certain plant. Use it to answer questions that follow.



(a). Name the parts labelled B.

(b). What group of plants has such roots?

(c). What do the parts labelled B contain?

(d). What is the function of what you have mentioned in part (c) above?

SCIENCE PLE 2009 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

--	--

Sector

--	--

School

--	--

Pupil

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PUPIL'S FULL NAME

Sur name

:

SECTION A (50 MARKS)

1. (a). Why is rain water good for our environment? Give two reasons.

- (b). Write two reasons why rain water is bad for our environment.

2. Is the moon a natural source of light? Explain your answer.

3. (a). Why is a hoe made of a metal?

- (b). Write two reasons why a saucepan is made of metal.

4. (a). What causes water to change from a liquid state to gas?

- (b). What is the name of water in a solid state?

5. (a). What is meant by the term "mass of a body"?

- (b). What is the unit of mass?

- (c). Why does relative density have no unit?

6. Explain why a stone sinks in water while a dry wood floats on water.

7. Why are tea cups made of poor conductors of heat?

8. (a). Draw a simple electric circuit which has a torch, cell, a switch and a bulb.

(b). It is not good to touch an electric switch when the fingers are wet. Why?

9. Read the statements below and write **TRUE** for a correct answer and **FALSE** for a wrong answer.

(a). Sound does not travel through solids.

(b). Sound travels through a vacuum.

(c). Echoes are caused by refraction of sound.

10. Name any two simple machine used by a tailor.

11. Write any two properties of a magnet.

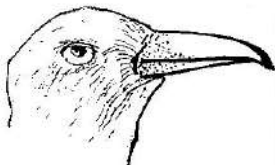
12. State any two reasons why oxygen is important.

13. (a). Draw a labelled diagram showing how a ray of light is reflected by a plane mirror. On your diagram, name angle of incidence and angle of reflection.

(b). Why does a ray of light coming from the air bend as it enters the surface of water?

14. It is not good to wear thick black clothes on a hot day. Why?

15. The diagram below shows the beak of a bird.



Why do you think a bird with this kind of beak is a meat eater?

16. How does a chameleon protect itself from its enemies?

17. What group of mammals has a more developed brain for reasoning?

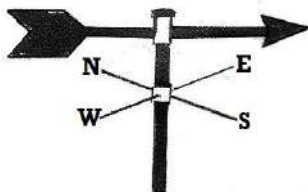
18. Why are telephone wires left loose in between poles?

19. What change takes place when wood burns to ash?

20. Shyaka has a radio that uses 6 dry cells of 1.5 volts. What is the voltage used?

21. State any one water borne disease.

22. (a). What is the use of the instrument shown in the diagram below?



). Suggest one instrument that has the same function as the one shown.

23. State one method of avoiding tooth decay.

24. Apart from light, carbon dioxide and water, what else does a leaf need to manufacture food? _____

25. Why should we bathe daily?

26. Mention one reason why drinking water should be boiled.

27. What helps a frog to swim easily?

28. Why shouldn't people with AIDS be isolated?

SECTION B (50 marks)

29. From number (a) to (d), answer **True or False**.

(a). Proteins are for growth and repair; they should therefore be given to children.

(b). Glucose is used to provide energy during exercises; it should not be given to young children.

(c). The circulatory system consists of the heart and blood vessels.

(d). HIV can be transmitted through blood when people share syringes and other stained instruments.

30. Give at least two examples of omnivores animals.

(b). Give one example of a carnivorous animal.

(c). Name one domestic animal you are familiar with.

31. (a). Name the long tube through which our food passes as it is being digested.

(b). The organ responsible for pumping blood in the human body is;

(c). Name at least two excretory organs in animals.

32. Cutting is a method used in planting some plant items.

Give two examples of such plants.

33. (a). What causes beriberi in most children?

(b). Goitre is a disease which is characterized by the swelling of the thyroid gland. What causes it? _____

(c). How can goitre be prevented?

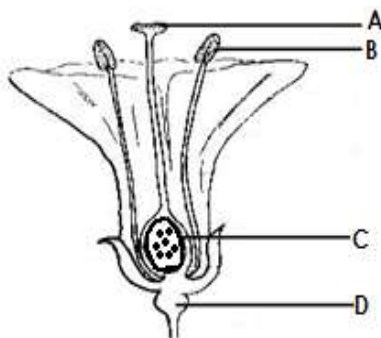
34. (a). Each part of a plant has a particular function. What are the functions of :

Flowers _____

Leaves _____

Fruits _____

(b). Name the parts of a flower labelled A, B, C and D.



A is _____
B is _____
C is _____
D is _____

(c). What is the function of A, B and C?

A _____

B _____

C _____

(d). What are sexual cells in a human being?

(e). What happens after fertilization in plants?

35. (a). Fish is adapted to swimming. What features enable it to swim?

(b). What features of a bird enable it to fly?

36. (a). What is kwashiorkor?

(b). Give two symptoms of kwashiorkor?

37. The animal below is of a rodent.



(a). What do rodents feed on?

(b). Give one characteristic of rodents?

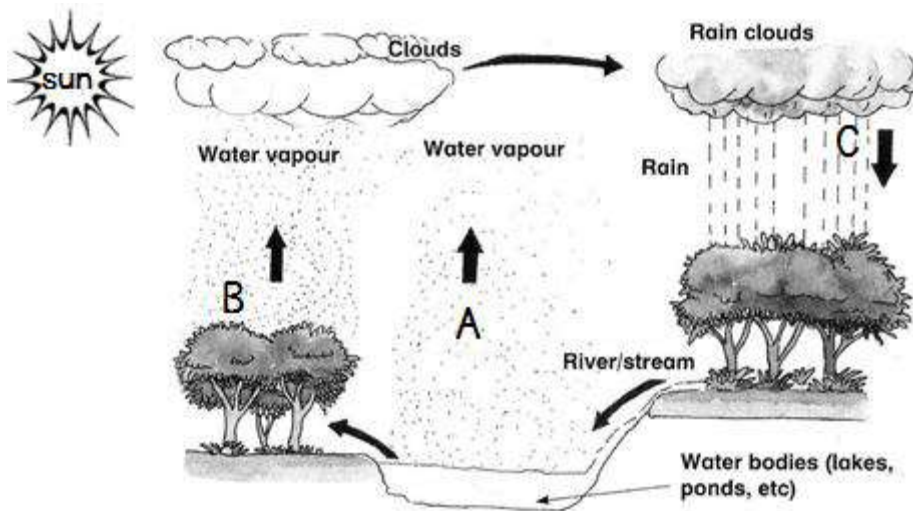
38. (a). What is forest conservation?

(b). Give at least three reasons why we should conserve our natural forests.

39. (a). What is pollution?

(b). Give two reasons why it is dangerous to use polluted water?

40. The diagram shows a water cycle.



(a). Name the processes at A and at B.

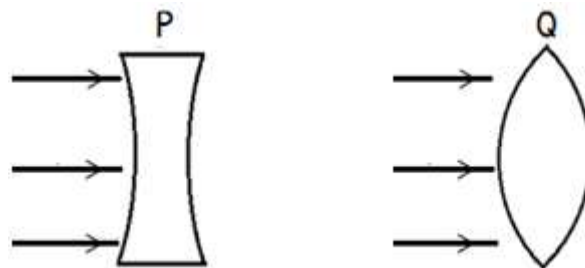
A _____

B _____

(b). Name any one change likely to occur at C.

(c). What is the role of the sun in the cycle?

41. The diagram below shows parallel rays striking different lenses.



(a). Complete the diagrams P and Q so that they show the rays after they pass through the lenses.

(b). Name the lenses shown in P and Q.

Lens P _____

Lens Q _____

SCIENCE PLE 2008 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

--	--

District

--	--

Sector

--	--

School

--	--

Pupil

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PUPIL'S FULL NAME

Sur name

:

SECTION A (50 marks)

1. Name one tool used by;

(a) a farmer _____

(b) a carpenter _____

2. Which of the following is a metal: carbon, glass, sodium, oxygen?

3. Mention any two sources of artificial light.

4. Which of the following will be picked by a magnet: chalk, wood, stone, iron, nail, glass, steel wire? _____

5. Name one liquid fuel and one solid fuel used in homes.

Liquid fuel _____

Solid fuel _____

6. Why is water a solid when its temperature is below zero degrees centigrade?

7. The density of gold is 19g/cm^3 . Calculate the volume of 95g of gold.

8. What does a transformer do?

9. Why does a pond full of water appear much shallower than it actually is?

10. By which method is heat transferred;

Through air _____

Through a metal _____

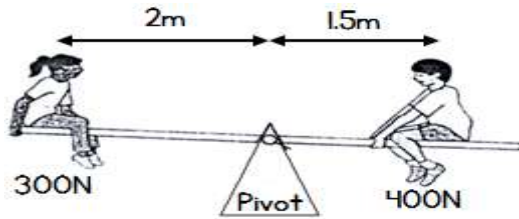
Through water _____

11. Which is the energy that helps us to hear?

12. What causes an echo?

13. What is the difference between umbra and penumbra shadows?

14. The figure below shows a girl and a boy on a playing seesaw.



Who of the two is heavier than the other?

15. Name the four parts of a human heart.

16. Mention any two signs of cholera.

17. Give two ways of preventing cholera in your home.

18. (a). Name the disease caused by lack of vitamin C.

(b). What type of food can you give to such a person? Give an example.

19. In which harmful way is a mosquito similar to a housefly?

20. What is the function of the Eustachian tube in the mammalian ear?

21. Mention one danger of throwing polythene bags (udushashi) into gardens?

22. The diagram below shows a stage in the life history of a mosquito



(a). What is the third stage called in the life history of mosquito? _____

(b). Name the part marked P. _____

(c). Of what use is part marked P. _____

23. Dushime shouted loudly in a big house. As he shouted, he heard another similar sound.

(a). Give the name of the similar sound Dushime heard after shouting.

(b). How was the sound you have named above formed?

24. What is transpiration?

25. State any one effect of air pollution on people.

26. At what time of sunny days are shadows shortest?

27. Why does blood go to the kidney during circulation?

28. Give any one use of cow dung to farmers.

29. Identify any two properties of pure water.

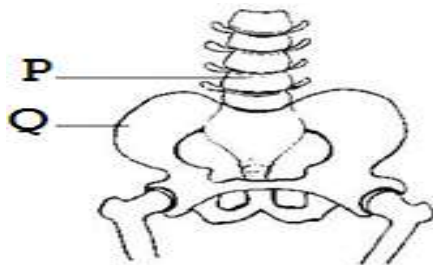
30. (a). What is soil erosion?

(b). Identify four agents of soil erosion.

31. Why is a clinical thermometer used to measure human temperature instead of any other thermometer?

SECTION B (50 marks)

32. The diagram below shows part of a human body. Use it to answer questions that follow;



(a). What type of joint is shown in the diagram?

(b). Name parts P and Q.

P _____
Q _____

(c). How is the movement of this joint different from the movement of the elbow joint?

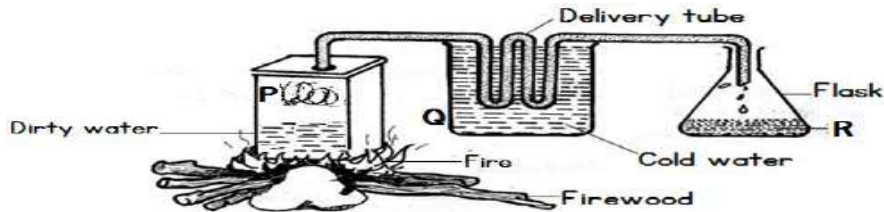
33. Give any three uses of water to people.

34. Mention any three sexually transmitted diseases you know.

35. Fill the table below with end products after digestion.

Food	End product after digestion
Carbohydrates	_____
Proteins	_____
Fats	_____

36. The diagram below shows one method of getting pure water from dirty water.



(a). What is the name of the method?

(b). What physical change takes place at P?

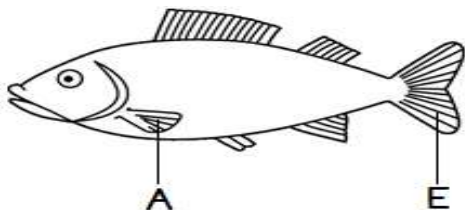
(c). What is the purpose of cold water at Q?

(d). How do you call the pure water collected at R?

37. (a). Give two reasons why burning and rusting are considered similar reactions.

(b). A farmer notices that whenever he leaves his hoe outside the whole day, on a clear day, it does not rust. But whenever he leaves his hoe outside the whole night, it rusts. Why is this the case?

38. The diagram below is of a Tilapia fish. Use it to answer questions that follow.



a). Name the part labelled A.

b). How is part E useful to a fish?

c). What does the fish use nostrils for?

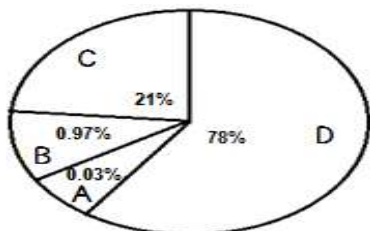
(d). Name any one animal that can live both on land and in water

39. (a). How does a banana plant multiply?

(b). What insect pest attacks bananas?

(c). In which part of the plant would you find this insect pest named above?

40. The pie chart below shows the proportions of air. They are labelled A, B, C and D. Use it to answer the questions that follow.



(a). Which letter in the pie chart represents the gas which supports both breathing and burning?

(b). What is the use of the gas represented by letter B?

(c). Name the gas represented by letters;

D _____

A _____

41. A married couple has 10 children. The oldest child is 15 years while the youngest child is 3 years old.

(a). State any one social problems this family is likely to face.

(b). Mention one health problem the mother may face.

(c). State one suitable advice you would give to this family.

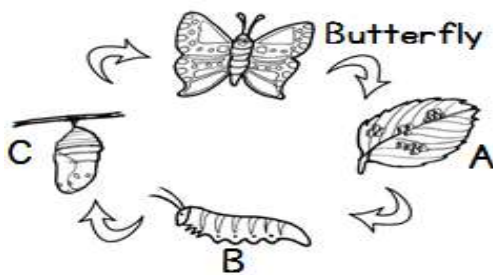
42. Karemera came back from school and found a piece of left over boiled potato which was not covered. Because he was very hungry, he began to eat it at once.

(a). State two good health practices Karemera did not follow.

(b). Name the disease Karemera could suffer from.

(c). Give a reason for your answer above.

43. The diagram below shows the life cycle of a butterfly.



(a). Name the stages B and C.

B _____

C _____

(b). At what stage is a butterfly a pest?

(c). State one reason why a butterfly is classified as an insect. _____

44. (a). State any two ways of acquiring immunity.

(b). Apart from the six killer diseases, state any one other disease where one can acquire immunity. _____

45. Use the list of plants below to answer the questions which follow

Beans, Mosses, Conifers, Mushrooms

(a). Which two plants would you group together as members of one family?

(b). Which one of the above plants reproduces by means of flowers?

(c). In what kind of environment would you find mosses?

SCIENCE PLE 2007 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

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District

--	--

Sector

--	--

School

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Pupil

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PUPIL'S FULL NAME

Sur name

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SECTION A (50 marks)

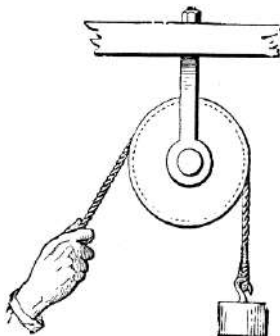
1. Give the name of the metal from which saucepans are made.

2. What are the two most common solid fuels used for cooking in Rwanda?

3. Why is the density of ice less than the density of water?

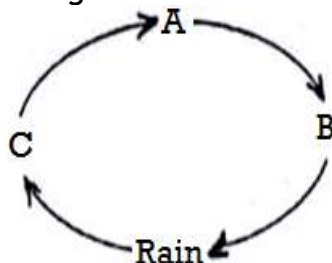
4. Complete the following sentence:
Toilet windows of modern houses are made of translucent glasses because;

5. (a). Name the machine below:



(b). State what this machine is used for.

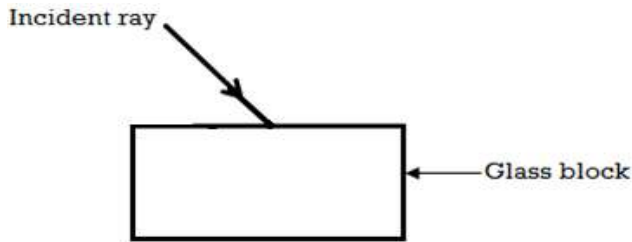
6. The diagram below shows a water cycle. Name A, B, and C.



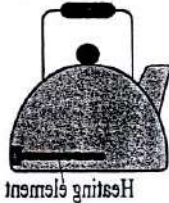
A _____
B _____
C _____

7. Complete the sentence below:
Light from the moon comes from the _____

8. Complete the diagram below to show the path of incident ray of light through the glass block.



9. The diagram below shows an electric kettle.



Why is the heating element not put near the top of the kettle?

10. Name the method of propagation where a bud or shoot of one plant is made to grow on another plant.

11. (a). Anaemia is a consequence of iron and protein deficiency in the body. Name one other disease which can cause anaemia.

- (b). Name any one symptom of anaemia.

12. Which group of animals do the following belong?



A _____
 B _____
 C _____

13. Match animals in group A to their modes of feeding in group B.

Group A

Dog
 Chameleon
 Rabbit
 Hen
 Cow

Group B

Rodent
 Granivores
 Insectivores
 Herbivores
 Carnivores

14. What is the reproduction mode of sugarcane?

15. Suggest two of the methods used to avoid pregnancy.

16. Mention two ways how pure water can be obtained from impure (dirty) water?

17. (a). Which component of blood is affected by HIV?

(b). Identify any one function of blood to the body?

18. What is the function of each part below in the human ear?

Pinna

Ear drum

Auditory nerve

19. Give any two functions of the human skeleton.

20. (a). What is an accident?

(b). Give two examples of accidents that can happen on the way to and from school.

(c). Identify one cause of road accidents.

21. Cholera and dysentery are caused by microbes and germs. Suggest three methods you can use to avoid contracting these diseases.

22. (a). What is a magnet?

(b). State any one material attracted by a magnet.

(c). Give one way how a doctor can use a magnet in the hospital.

23. (a). Mention any two electronic applications used at home.

(b). Give any two good conductors of electricity.

SECTION B (50 marks)

24. The diagram below is of a sealed soda bottle. Use it to answer questions that follow.



(a). Why was the space labelled Y left in the bottle?

(b). Name the gas that bubbles out when the bottle is opened.

(c). Which process in plants uses the same gas named above?

25. (a). Name the two major parts of the central nervous system.

(b). Identify any one non-infectious disease of the nervous system.

(c). Explain how excessive alcoholism destroys the central nervous system.

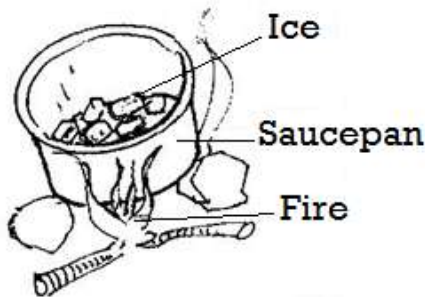
26. (a). State the type of germination for;

Bean seeds _____

Maize seeds _____

(b). State the difference between the two types of germination you have mentioned above

27. A boy put ice in a saucepan and heated it for about 5 minutes.



(a). What happened to the ice after 5 minutes?

(b). What type of change took place?

(c). Mention the three states of water you know.

28. Answer **true** (for a statement that is correct) or **false** (for a statement that is wrong)

a) Kwashiorkor is caused by polluted water.

b) Echo is refraction of sound.

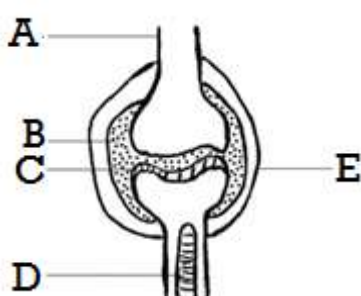
c) During pregnancy, the woman continues to have monthly periods.

d) Ice is the solid state of water.

e) A baby has less teeth than adult.

f) A cow is oviparous.

29. Name the following parts on the diagram shown below.



- A _____
- B _____
- C _____
- D _____
- E _____

30. Ca D _____ ple machines to the classes of levers below.

Wheel barrow, human arm, hammer, see-saw, fishing rod, a pair of scissors.

(a). First class of levers (inter fulcrum lever)

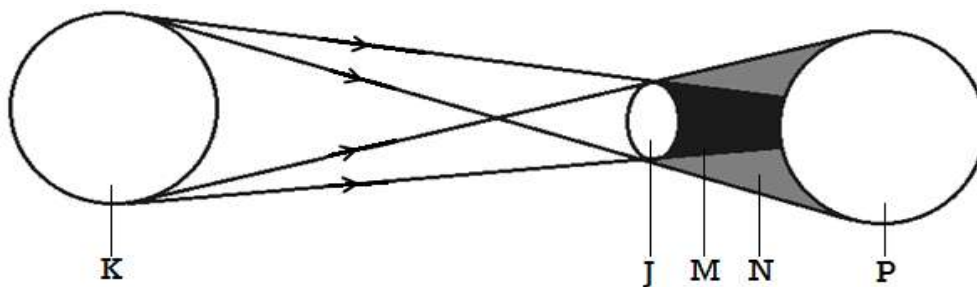
(b). Second class of levers (inter resistance lever)

(c). Third class of levers (inter force lever)

31. Study and complete the table below.

Part of digestive system	Stomach	Pancreas
Location of the gland	_____	_____
Enzymes of digestive juice in the gland	_____	_____
Substrate of enzyme in the digestive juice	_____	_____
Products of food acted upon	_____	_____

32. The diagram below shows a solar eclipse. Complete it by naming the parts marked by letters K, J, M, N and P.



- K _____
- J _____
- M _____
- N _____
- P _____

33. Study the list of animals below and answer the questions that follow.

lions	bats	hens	frogs	snakes	cats	cows	pigs
-------	------	------	-------	--------	------	------	------

(a). Which of the animals are cold-blooded?

(b). Which of the animals above lay eggs?

(c). Which of the above animals are viviparous?

(d). Lungs are to cows as _____ are to insects.

SCIENCE PLE 2006 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

District

Sector

School

Pupil

PUPIL'S FULL NAME

Sur name

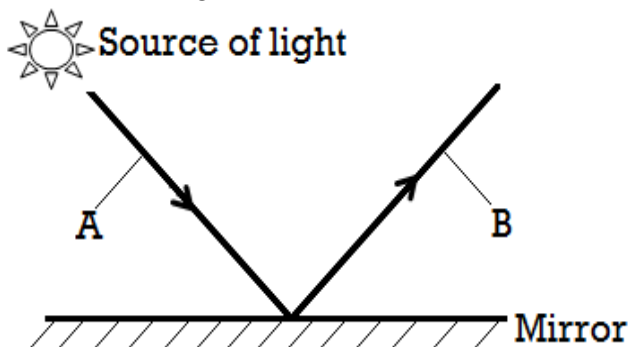
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SECTION A (50 marks)

1. What causes day and night?

2. Why are most windows of modern houses made of glasses?

3. Study the diagram below:



Name the rays marked;

A

B

4. (a). Which of the two travels faster light or sound?

(b). Does sound travel through water?

5. What would be the state of water if its temperature is decreased to below 0°C ?

6. The mass of a substance is 9.0 g and its volume is 10cm^3 .

Calculate the density of the substance.

7. A person sinks into water in a lake. However, when a person is on a boat, the boat does not sink into the lake. Why?

8. (a). Why do people who live in hot deserts wear white clothes?

(b). Why are blankets good for covering ourselves during cold nights?

9. If pieces of iron have dropped into the sand, which simple material can you use to pick the iron pieces from the sand? _____

10. Why does a vacuum flask keep tea hot longer than an ordinary kettle? Give three reasons.

11. (a). Which is the source of energy that enables radios to produce sound?

(b). Which of the following materials can conduct electricity: copper, dry wood, plastic ruler, rubber, iron? _____

(c). Electricity can be dangerous. Name two accidents electricity may cause in a home.

12. Give examples of animals which breathe through.

The gills _____

The skin _____

Lungs and skin _____

13. Study the leaves below and answer the questions that follow.

(a).



Leaf 1



Leaf 2

Which of the above is a simple leaf?

(b). What is the name of the gas produced by leaves during photosynthesis?

14. Where in our bodies is blood filtered to remove wastes?

15. Each part of a plant has a particular role. What is the role of?

Roots _____

Stem _____

Flowers _____

Fruits _____

16. What are agents of pollination?

17. Cholera and dysentery are caused by microbes, germs.

Suggest three methods you can use to avoid catching these diseases.

18. (a). Define fertilization and implantation.

Fertilization _____

Implantation _____

(b). How many months does pregnancy last in a cow?

19. (a). What is the full name of HIV?

(b). Give three ways you can avoid contracting HIV.

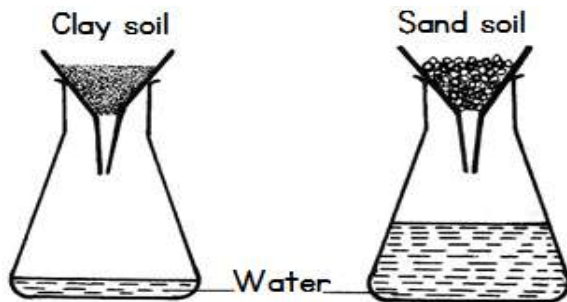
20. Give two uses of soil to man.

21. What is the advantage of human milk over cow's milk for feeding babies?

22. The skin is made up of three layers. Apart from epidermis, name the two other layers.

SECTION B (50 MARKS)

23. Equal volumes of sandy and clay soils were placed into containers as shown below. Equal volumes of water were poured into each soil type at the same time. After 10 minutes the volume of water collected are as shown in the diagram.



(a). Through which soil did the water drain faster?

(b). Give a reason for your answer.

(c). Why do the types of soil allow water to drain at different rates?

24. Below is a list of activities carried out by people in the environment.

Use the list to answer questions that follow

Fishing

Producing a lot of smoke in the factories

Draining swamps

Throwing polythene bags (udushashi) on the soil

Crop rotation

(a). Which activity is likely to decrease the amount of rainfall?

(b). Which activity is likely to spoil the fertility of the soil?

(c). Which activity is good for controlling crop diseases?

(d). Which activity is likely to cause pollution of the atmosphere?

25. (a). Give two reasons why a mushroom is not a plant?

(b). Give any two plants that reproduce in the same way like a mushroom.

26. (a). What is the use of hairs found in the nose of a human being?

(b). Name any one disease that attacks the respiratory system

(c). What happens to the diaphragm when we breathe:

(i). In? _____

(ii). Out? _____

27. (a). Give any two ways in which bacteria are useful to human beings.

(b). Give any two ways in which bacteria are dangerous to human beings.

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

(b). How are plants different from animals in the way they get their food?

29. (a). Why does blood move from the heart to the lungs before it moves round the body?

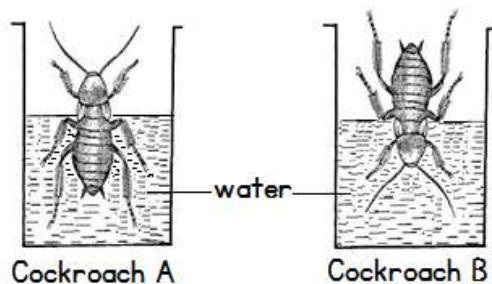
(b). Which viral disease attacks each of these types of blood cells?

(i). Red blood cells _____

(ii). White blood cells _____

(c). Apart from red and white blood cells, name the one other type of blood cells you know.

30. In the diagram below, two cockroaches were placed in water as shown below.



(a). Which cockroach died?

b). Give a reason for your answer in part

(a) above.

(c). In which way is the above insect shown in the diagram harmful to man?

(d). Give any other insect that causes harm similar to that of a cockroach.

31. (a). Give any two ways in which fish can be preserved.

(b). Which food value do we obtain from eating fish?

32. Match the items of group A with those of B below.

Group A

Heart

Kidneys

Skin

Lungs

Brain

Group B

Sensory organ

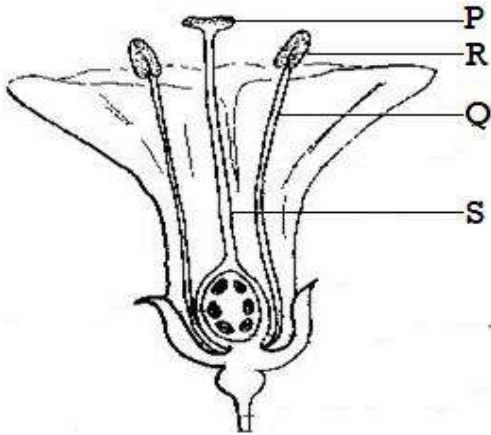
Memory

Carbon dioxide

Circulation of blood

Urine

33. The diagram below is of a hibiscus flower



(a). Name the parts marked with letters.

P _____

R _____

S _____

(b). What is the function of part Q?

(c). Which part receives pollen grains?

(d). How do we call the female and male parts of a flower;

(i). Male _____

(ii). Female _____

34. (a). Name one important vein that connects the liver to the ileum.

(b). What does the vein named above carry to the liver?

(c). Name any one disorder of the digestive system.

SCIENCE PLE 2005 EXTRACT

PUPIL'S COMPLETE INDEX NUMBER

Province/city

--	--

District

--	--

Sector

--	--

School

--	--

Pupil

--	--	--

PUPIL'S FULL NAME

Sur name

:

SECTION A (50 MARKS)

1. For each of the following statements, indicate if it is (**true**) or (**false**).

(a). Milk is a balanced diet.

(b). Young children can grow normally without eating proteins.

(c). A cow, a rat and a cat are mammals.

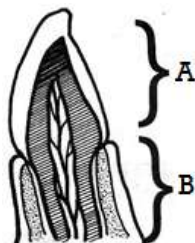
(d). Snakes, frogs and fish are reptiles.

2. Match the following organisms in A with their respective examples in B.

<u>A</u>	<u>B</u>
Decomposers	man
Herbivores	goats
Carnivores	leopard
Omnivores	bacteria

3. (a). An adult person has 32 teeth. What is the use of teeth?

(b). The diagram below shows the structure of a tooth.



Name the parts labelled A, B.

A _____

B _____

(c). Why is it advisable to wash your hands before eating with your hands?

4. (a). Give at least three examples of sexually transmitted diseases.

(b). Name two ways of preventing such diseases.

5. The figure below shows two types of cows. One is a local cow and the other is an imported one.

Local cow



Imported cow



Give at least three differences between the two cows.

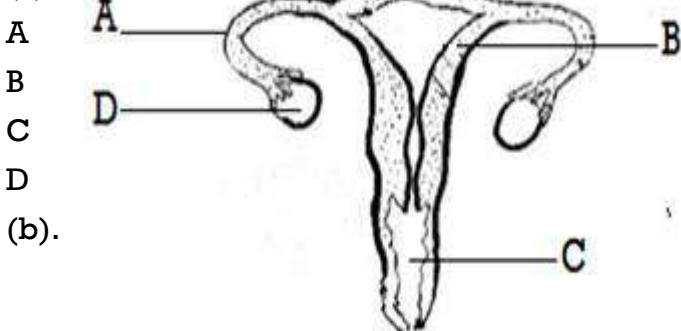
6. Burning forests in Rwanda is not allowed and is punishable. Why? Give three reasons why forests must not be burnt.

7. Give at least three reasons why the government of Rwanda took the decision to stop the selling of polythene bags (udushashi).

8. Name at least three sources of electricity.

9. The diagram below shows the human female reproductive system.

(a).



Name the parts labelled **A**, **B**, **C** and **D**.

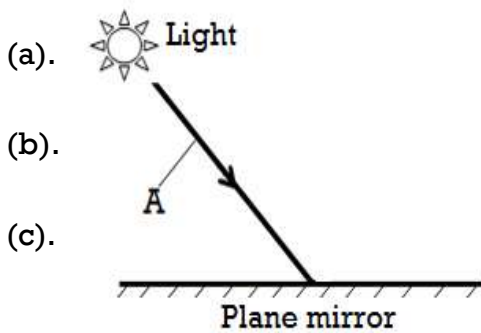
(b).

Indicate with letter **X** on the diagram where the embryo develops.

10. (a). What is a transparent body?

(b). Give one example of a transparent body.

11. Below is a plane mirror and light from a lamp falling onto a mirror?



How is light ray **A** called?

On the diagram, draw a ray to show the direction of ray **A** after falling on the mirror surface.

What is the name of the ray you have drawn?

12. (a). Name three things which are involved in the formation of eclipses.

(b). What causes a lunar eclipse?

13. Electric cables are made of copper wires which are covered by plastic materials. Why are plastic materials used to cover copper wires?

14. How does the heat from the sun reach the earth?

15. Why are most tea cups made of poor conductors of heat?

16. Study the instrument below and answer the questions below it.



(a). What is the name of the instrument?

(b). What is the instrument used for?

(c). Name the instrument used to measure the amount of rainfall.

17. What causes an echo?

18. Why does a stone sink when it is put in a bucket full of water?

19. Give any one characteristic common in all vertebrates.

20. Give any one way in which animals are important during the process of photosynthesis.

SECTION B (50 marks)

21. Fill in the table by putting an (x) in the correct boxes.

Food	Digested by			
	Maltase	Lipase	Amylase	Pepsin
Starch				
Sugar				
Protein				
Fat				

22. (a). What does the term dehydration mean?

(b). What are the two major causes of dehydration?

(c). Give any one common sign of dehydration in children.

23. (a). Name the class of foods that repairs worn-out tissues and makes children grow.

(b). Describe one way through which cooked food can get dirty and contaminated.

(c). Explain any one good eating habit.

24. The diagram below shows a vacuum flask



(a). What is a vacuum flask?

(b). Name the part labelled Q.

(c). Why is part P made of cork or plastic?

25. (a). State any one reason why a frog is able to live comfortably both in water and on land.

(b). To which group of animals does a frog belong?

(c). What helps a frog to swim easily?

26. Kwizera stepped on a burning charcoal by accident. She immediately removed her foot.

(a). What name is given to her immediate reaction?

(b). What part of the body controls this type of reaction?

(c). Name the muscle which helped Kwizera to remove the foot immediately.

27. Mutoni's home is near a pond.

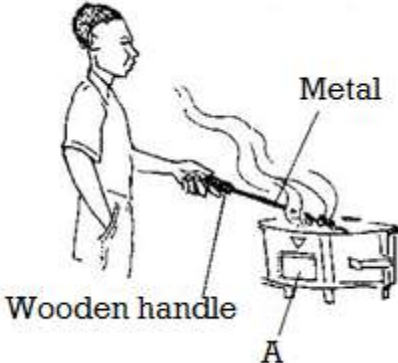
(a). State any two diseases members of Mutoni's family are likely to suffer from.

(b). Suggest one measure Mutoni can do to avoid one of the following diseases mentioned above.

28. (a). Name any two ways of protecting cattle from foot and mouth disease.

(b). How do modern dairies keep milk safe from germs?

29. The diagram below shows a lit charcoal stove (isigiri) with Muheto roasting meat.



(a). What is the function of hole marked A?

(b). Why does Muheto hold the wooden handle?

(c). What form of energy is Muheto using to roast the meat?

(d). How does smoke reach Muheto's eyes?

30. What is asexual reproduction?

(b). How can the following be propagated;

Onions _____

Sweet potatoes _____

Banana plant _____

31. Match correctly the list A to the list B

List A

Goitre

Marasmus

Kwashiorkor

Rickets

List B

Lack of carbohydrates

Lack of iodine

Lack of vitamin D

Lack of proteins

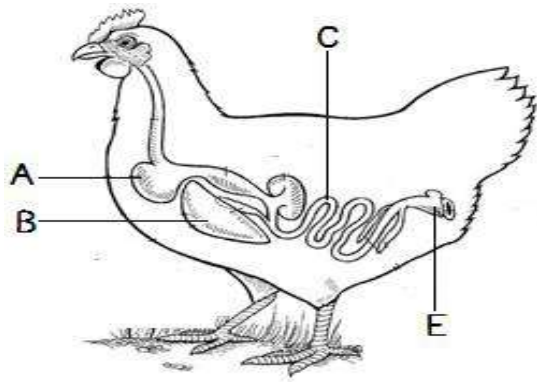
32. Write the following in full:

AIDS _____

HIV _____

STDs _____

33. The diagram below shows the digestive system of a hen.



(a). Name the parts labelled;

B _____

E _____

(b). Why does part A store food?

(c). How is part C adapted to its function?

(d). Name the particles included in the feeds that help in the breaking down of food.

34. (a). What is gestation period?

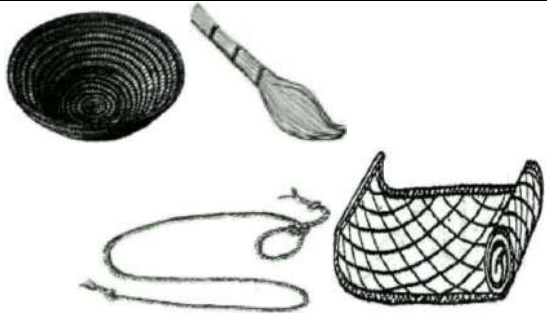
(b). How long is gestation period in people?

(c). What is the difference between an embryo and a foetus?

SUGGESTED ANSWERS FOR PLE 2021

Section A		
1. a) Kite, rectangles, square b) pot, animals	11 a) they attract each other b) The magnetic force decreases	
2. a) charts, real objects, papers b) keeping them in a dry and clean environment	12 a) i) 100° C ii) above 0° C b) freezing	
3. a) spraying pump b) A rake	13. radios, telephones, newspapers, drums	
4. a) to fasten and loosen bolts b) cutting wood c) to produce pressure and air to the burning fire	14. d	
5. a) i) sand, stone ii) Wheel barrow b) wearing protective gears	15. coding or programming	
6. a) equals b) refracts c) transparent	16. is the electronic way of sending and receiving of messages	
7. a) i) for cooking ii) running or operating machines b) it can cause death.	17a) false, b) false c) true, d) true	
8. a) plastic materials b) because metals are good conductors of heat	18. is the virtual location for application, data, document, videos etc.	
9. a) false b) true c) true	19. google chrome, yahoo, opera, bing, safari	
10a) it protects the environment b) heat energy changes into light energy	20. scratch, java, turtle	
	21. is a system software designed for children to learn on.	
Section B		
22. boiling Using chemicals, filtration, decanting	32. a sweet scent	
23. cholera, typhoid, diarrhoea,	33. supports the body, formation of blood cells	
24. i) Retina ii) an optic nerve iii) ciliary muscles	34. a) i) small intestines (villi) ii) long intestines (colon) b) i) glucose, ii) amino acids iii) fatty acids and glycerol	
25. a) femur b) plangles, carpals, trasals c) scapula, ribs	35. i) supports the plant, storage of food ii) supports the upper part of the plant store food	
26. a) sexual reproduction involves the use of both a male and female gametes to form a zygote while as asexual reproduction only involves the use of only one parent or no gametes are needed. b) boys – wet dreams, voice deepens girls – menstruation periods begins, growth of breasts	36.	
	Insect pollinated flowers	Wind pollinated flowers
	Have large petals	Have small petals
	Have scent	No scent
	Few pollen grains	A lot of pollen grains
Sticky stigma	Hairy stigma	
27. a) having un protected sex with an infected person b) abstinence from sex	37. a) Aorta b) for filtration	
28. a) growing, breathing, decaying, reproduction b) reptiles	38. dropping out of the school Poverty	
29. plants make their own food while animals don't	39. kidney	
30. i) Abstinence ii) sleeping under a treated mosquito net	40. They are energy- giving food.	
31. i) fight against disesaes ii) transport oxygen in the body iii) helps in blood clotting		

SUGGESTED ANSWERS FOR PLE 2019

1	a):i) true ii) false b)- Images is laterally inverted (upside down) -image is smaller than the object, -The distance from the image to the plane mirror is the same.	2	For seed germination, photosynthesis, take photographs, rainfall formation ,light to see
3	a) Wood chisel, plane b) Mechanics tool open-ended spanner Blacksmith tool tongs	4	-burns and scalds, fractures, wounds, cuts, electric shock
5	a)Hand hoe, spade, wheelbarrows, watering can, burddizo ,milking can b) To prevent rusting, to avoid friction	6	a) Magnetic b) North Pole and South Pole.
7	Shape: liquids don't have definite shape/take shape of a container/shapeless Volume: liquids do not have a definite volume.	8	 ii) Pot, toy car, basket, ropes, broom, mats b) Clean them after use, keeping them in boxes, cupboards, painting them, hanging them on walls
9	a) i) $M = \text{Density} \times \text{Volume}$ ii) $M = D \times V$ $M = 19.32 \times 2$ $M = 38.64 \text{ g}$ b) i) It sinks ii) Because it's density is greater than the density of water It's density is greater than one (1)	10	a) Bulb b) i) B (bulb) will produce heat and light energy ii) because part X (switch) completes the circuit c) B will not produce heat and light energy
11	i) C. Storage ii) Rename the document	12	A. Website
13	True	14	true
15	true 17) Animation	16	true 18) A. External hard disk
19	Square, triangle, rectangle, circle, trapezium parellogram	20	Addition(+) difference(-) division(\div) multiplication(*)
21	Paint tool	22	Control blocks, motion blocks, looks blocks, sound blocks, pen blocks, sensing blocks, operators blocks, variables blocks
Section B			
23	X-coordinates(+) Motion movement (forward)	24	A. Bat
25	B. Milk	26	D. Soil
27	A. It supports life	28	D. Sweat gland

29	C. Zygote →embryo →foetus → baby	30	A. Gulley erosion
31	D. Vitamin A	32	C. Fish, beans, green vegetables
33	C. HIV is got through sexual intercourse	34	Liver and Pancreas
35	a) zygote b) Stores digested food and oxygen, stores undigested food and it is diffused in the mothers body, prevents poisonous substances to reach the foetus, holds the foetus to its mother	36	a) flower b) pollen grains , ovules
37	true	38	false
39	true	40	true
41	false	42	Supports the body, formation of blood cells, attachment of muscles, protect delicate body parts, helps in body movement
43	To cool the body, irrigation, water transport, domestic purposes, generate hydroelectricity, cool machines, cleans the alimentary canal, formation of blood	44	Help in rainfall formation , for good, timber, herbal medicine, firewood, charcoal, poles, habitat for wild animals, tourist attraction
45	a) Pollution is the spoiling or contamination of our environment. b) Smoke from burning rubbish, fumes from industries, carbon monoxide from old vehicles, perfumes, insecticides, pesticides, dust	46	They both breath, eat, die, excrete, reproduce, respond to stimuli , move
47	List A a b c d	list B 2 3 4 1	48 To prevent spread of immunisable disease, boost body immunity, reduce infant mortality rate
49	49) To avoid spread of STDS, death, early pregnancy, early marriages, child parents,		

SUGGESTED ANSWERS FOR PLE 2018

1	a. sound energy, light energy, wind energy b. sun, wind, hydro power, bio fuel	20	To draw colour and edit pictures / paint shapes / helps to develop activities
2	a. pole field b. magnetic compass / compass direction / compass	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
3	First – dry cell / second – switch / third - resistor	22	It is a web based tool that enables users to locate information on the world wide web.
4	a. reflection of light b. (i). Tr. guide (ii). $90^\circ - 60^\circ = 30^\circ$ (iii) Tr. guide	23	Back – You can move the turtle backwards Left – You can change the turtle's direction to the left by a specified angle.
5	a. hoe / spade / watering can / axe / wheel barrow b. cutting oneself / rusting of tools	24	a. Locomotion b. To look for food / to escape from enemies / to look for shelter / to look for mates
6	a. plane / wood plane / Jack plane b. chisel / wood chisel c. To check if the surface is levelled or straight.	25	Chameleon → reptile / Toad → amphibian / Ostrich → birds / Bat → mammal
7	Water level, trowel, plumb line, tape measure	26	Both reproduce / both breathe / both can die/ both grow
8	Clay, mud, wires, straws paper, wood, banana fibre	27	a. ovary / root / petal / ovule / shoot b. Pollination would be hard
9	a. mechanic / technician (I.T) b. blacksmith	28	a. Yes b. Food is necessary for human survival a. No b. reduces rainfall formation leading to drought
10	a. False b. True c. True	29	Sepal→ protect the inner part of a flower Petal→ attracts insects Stamen→ male reproductive parts Carpel→ female reproductive part
11	Water = $(1000 \div 1000) = 1$ Gold = $(19320 \div 1000) = 19.32$	30	Veins→ bring back blood from the body to the heart Heart→ pumps blood to all body parts Arteries→ take blood away from the heart to the body
12	1 – Sublimation , 2 – Condensation , 3 - Freezing	31	a. Self (direct) pollination, cross (indirect) pollination b. wind, insects, birds, animals, plants, rain, man
13	hardware	32	a. epigeal germination, hypogeal germination b. warmth / temperature / oxygen (air)
14	icon	33	a. carbondioxide, water, sunlight, chlorophyll b. photosynthesis

			c. oxygen
15	delete / erase	34	a. Veins b. To prevent the backflow of blood c. Deoxygenated blood d. Urea, carbondioxide, salts, excess water, uric acid
16	journal / my document / ROM	35	a. Kidney b. Excretory system / Urinary system c. bladder / urinary bladder
17	a. From the home view b. From the invitation from a friend c. From the journal	36	a. Virus (HIV) b. Blood transfusion, sharing sharp objects, through birth c. Female anopheles mosquito
18	Sprite – an icon used to display a given set of command. Animation – is the giving of an object human characteristics like talking, crying, walking, etc	37	a. Bilharzia → intestines / urinary bladder b. Scabies → skin c. Trachoma→eyes d. AIDS→ blood / white blood cells
19	Scratch, turtle, java script, python,		

SUGGESTED ANSWERS FOR PLE 2017

1	To show whether walls of buildings are straight vertically or horizontally	20	Boiling Filtration / using chlorine / sedimentation
2	It breeds disease vectors like mosquitoes It leads to bad smell in our community	21	Heat the ice until it melts completely
3	It reflects light from the sun. The moon does not produce its own light.	22	Umbr Penumbra
4	-Transparent objects allow light to pass through clearly but translucent objects doesn't allow all light to pass through them.	23	Cooking food / boiling water Drying clothes / ironing clothes
5	Charcoal / wood (Biomass) Electricity / gas (Biogas)	24	It attracts iron and other electromagnetic materials It has two poles; North and South poles where magnetism is concentrated.
6	They are good conductors of electricity They do not corrode	25	It is an instrument used for showing geographical directions on earth or in airplanes.
7	It contains oxygen we breathe It is used by plants It protects the earth from harmful substances	26	<u>Calcium / vitamin D</u> – Rickets <u>Iodine</u> – <u>Goitre</u> <u>Vitamin B 1</u> – Beri beri <u>Iron</u> - <u>Anaemia</u>
8	Solids do not change shapes Solids do not change their volume.	27	a. Germination b. water (moisture), oxygen, warmth (sunlight) c. The plant has grown $11\text{cm} - 2\text{cm} = 9\text{cm}$
9	Mass of a body refers to the quantity of matter contained in a body.	28	a. Flower b. For decoration, used as medicine, food
10	The density of firewood is less than the density of water.	29	a. Pollination is the transfer of pollen grains from the anthers to the stigma of flowers Fertilisation is the fusion / joining of male and female gametes (sex cells) b. Self-pollination , Cross pollination c. ovary , ovule
11	- Angle of incidence equals the angle of reflection - The incident, normal and reflected rays all lie on the same plane.	30	Ureter → brings urine from the kidneys to the gal bladder. Kidney → where urine is produced Urethra → where urine is eliminated from the body. Bladder → where urine is stored
12	It is the bending of light as it travels from a denser medium to a less dense medium or vice versa.	31	a. Pulmonary circulation, systemic circulation b. <u>No</u> , all arteries <u>do not</u> carry oxygenated blood c. Pulmonary artery carry deoxygenated blood. d. - Removal of carbondioxide - Addition of oxygen
13	Conduction / Convection / Radiation	32	A-Pulmonary vein , B-Aorta , C-Pulmonary artery , D-Vena cava (main vein)
14	The cells are wrongly arranged. Wrong / poor connection	33	a. Lungs b. The nose has hairs and mucus that trap dust and microbes from entering the body/lungs
15	(Teacher's guidance)	34	a. Suffocation is lack of air or oxygen b. Applying mouth to mouth breathing

			c. Lung cancer , emphysema, bronchitis, TB
16	- Helps to provide light - Provides energy for operating home electric devices like radios, flat irons	35	a. Diarrhoea, dysentery, typhoid, cholera b. Washing hands properly before eating food Washing fruits before eating them Washing food containers properly Covering food , drinking boiled water
17	Guitar / radios / thunder / bells.....etc	36	a. A-Humerus , B-Femur , C-Tibia b. Gives the body shape, Provides support, etc c. Leads to bending bones, back pain,
18	Music tapes / flash disks / CDs / Cassettes	37	a. A-Biceps , B-Triceps b. (i). Muscle A contracts / shortens / thickens (ii). Muscle B relaxes / elongates/ becomes thin
19	Levers (wheel barrow / pair of scissors.....) Pulleys , wedge , inclined planes		

SUGGESTED ANSWERS FOR PLE 2016

1	a. It is any device used to simplify work. b. (i) Effort (ii). Load (iii). Fulcrum/pivot c. Second class lever	20	It is the lightest part of the shadow in an eclipse.
2	Draining water Sleeping under treated mosquito nets	21	Sound energy
3	Fire, torch, electricity, candle	22	Iron, steel, cobalt
4	To keep our body private To keep our body warm	23	By using a magnet.
5	a. Kinetic energy, Electric energy b. Light energy	24	a. These are diseases which spread from one infected person to another. b. Ebola, trachoma, measles, cholera
6	They expand when heated They are hard and strong	25	a. These are diseases that spread through sexual intercourse. b. Abstain from sex, avoid sharing sharp piercing instruments
7	Wind spreads diseases Too much wind destroys property Too much wind leads to soil erosion	26	a. It is a meal that contains all food values in their correct quantities. b. Fruits, green vegetables c. It is a disease caused by lack of enough specific class of food in the body. d. Rickets
8	Liquids flow Liquids have averagely arranged particles.	27	a. Mouth b. Small intestines (ileum)
9	$M = D \times V = \frac{9}{10} \times 20 = 18g$	28	a. Saliva juice b. Gastric juice c. Succus entericus
10	A stone sinks in water because its density is greater than that of water. A stone sinks because it is denser than water.	29	Liver and pancreas
11	Teacher's guidance	30	a. Male - sperms, Female - Ova (eggs) b. Ovulation
12	Conduction of heat, heat transmits through a solid conductor while radiation of heat, heat transmits through vacuum.	31	a. White blood cells / Red blood cells / Plasma / Platelets b. Platelets
13	Teacher's guidance	32	a. Excess water, carbondioxide b. It regulates body temperature / It stores fats / It protects the inner parts of the body / It is used for feeling / For excretion
14	a. Source of energy b. To give light	33	a. Escape from danger / Look for food and water / To look for shelter b. walk-man / crawl-snakes, lizards, crocodiles
15	It helps them to operate/work	34	a. Transpiration b. Sunlight / water / chlorophyll / carbondioxide
16	An echo is a reflected sound.	35	a. Water pollutants b. Sewage / dead animals / soil / chemicals
17	Music is an organised sound while noise is disorganised sound.	36	Ovules - seeds / Ovary - a fruit
18	Pond water contains some microbes that cause diseases.	37	Insects / mammals and birds
19	By cooling down the water vapour below 0°C i.e condensation		

SUGGESTED ANSWERS FOR PLE 2015

1	a. Claw hammer, hand saw, file, b. Hoe, rake ,.....	20	Radiation
2	a. Stagnant water breeds mosquitoes which spread diseases b. Terraces are used to control soil erosion along hilly areas	21	To keep their bodies warm by preventing heat loss
3	a. A simple machine is any tool (device) that simplifies work (makes our work easier) b. Pulleys, wedges, inclined planes,	22	Sauce pans are made of aluminium which is a good conductor of heat.
4	a. A candle, lamp, bulb, torch, b. Smooth, shinny surface	23	repel, attract
5	Teacher's guidance	24	North-south direction
6	A solar eclipse is formed when the moon blocks the sun light from reaching earth.	25	Magnets are used in cranes to lift magnetic metals Magnets are used in electronic devices like radio speakers
7	Liquids like paraffin, diesel, petroleum Solids like charcoal	26	Cholera, typhoid, dysentery
8	a. Light energy b. $W = F \times D = 50N \times 3m = 150J$ or NM	27	a. Human Immunodeficiency Virus Acquired Immune Deficiency Syndrome b. Abstaining from sex Avoid sharing sharp piercing instruments
9	Solid state Liquid state	28	Chlorination, sedimentation, filtration
10	Teacher's guidance	29	Femur bone, humerus bone, radius and ulna
11	$D = \frac{M}{V} = \frac{60g}{15cm^3} = 4g/cm^3$	30	a. To be tasty / To make it soft for chewing / To kill germs b. Starch - Glucose / Protein - Amino acids Fats - Fatty acids and glycerol
12	a. Copper b. White spirit	31	a. Fertilizers are substances which boost the growth of plants. b. Organic fertilizers / Factory made fertilizers
13	Solar electricity Hydro electricity	32	Heart - circulation of blood Kidney - Urine Skin - Sensory organ Lungs - Carbondioxide Brain - Memory
14	Cables Electric poles	33	a. Three main body parts b. M - Thorax N - Abdomen c. For seeing d. In dirty places e. It spreads disease germs to man
15	Flat iron, television, computers,	34	A - Oviduct / B - Ovary / C - Uterus / D - Cervix / E - Vagina
16	Switching off the main switch Pushing the wires off from a person using a dry non-metallic item like a dry stick	35	a. It produces different enzymes which break down food. b. It kills any germ swallowed in with food.
17	By clapping	36	a. Sweeping the compound with a broom

	By vibrating objects		Bathing regularly using clean water, soap b. To prevent bad smell from them To keep away flies that spread diseases
18	Using a flash disk Using a memory card	37	a. Teacher's guidance b. Leaves help plants in transpiration Leaves store food and water for the plants (ii). Leaves serve as food to us Leaves serve as herbs which heal some diseases
19	Due to variations in temperature Due to atmospheric pressure		

SUGGESTED ANSWERS FOR PLE 2014

1	(a). A hammer is used because it is hard and metallic (b). A saw is used because it is sharp	21	(a). It contains chemicals and germs (b). Through boiling the water (c). Bilharzia
2	(a). Through digging drainages (b). It breeds mosquitoes	22	Teacher's guidance
3	(a). Oblique object (b). The sun	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.
4	(a). Teacher's guidance (b). $= 90^\circ - 50^\circ = 40^\circ$	24	Teacher's guidance
5	(a). When the earth obstructs light from the sun (b). Umbra is the darkest part of the shadow	25	In lifting heavy magnetic materials, used in industries to separate iron filings from other materials
6	(a). Charcoal (b). It is highly flammable	26	Lung cancer / Whooping cough / Bronchitis
7	Electrical energy, heat energy, light energy	27	(a). For protection against diseases, for body building, for provision of energy (b). Breast milk
8	(a). A metal is a good conductor of heat but a non-metal is not. (b). Copper is a good conductor of electricity	28	(a). Epigeal germination, hypogeal germination (b). Oxygen, water and warmth
9	(a). Oxygen (b). Carbon dioxide	29	(a). Family B (b). Vitamins and minerals (c). Family D
10	(a). its density is higher than that of water (b). Relative density is the ratio of mass of a substance to that of water.	30	Plants breathe out oxygen which animals breathe in and animals breathe out carbon dioxide which plants breathe in.
11	Teacher's guidance	31	A cockroach undergoes incomplete metamorphosis (3 stages) but a housefly undergoes a complete metamorphosis (4 stages).
12	(a). Convection (b). Mercury	32	Man breathes through the lungs while an insect breathes through spiracles.
13	Teacher's guidance	33	(a). The all lay eggs (b). Mammals (c). They are both cold blooded animals
14	(a). To regulate current (b). Cables are good conductors of electricity	34	(a). X-Pancreas, Y-ileum, W-liver (b). Absorption of digested foods (c). It produces insulin that regulates sugars in the body
15	For lighting / For running electric machines	35	(a). Abstaining from sex, avoid sharing sharp piercing instruments (b). Sleeping under treated mosquito nets, slashing the bush around homes.
16	You may be electrocuted	36	(a). it does not have a back bone (b). to give the body shape
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	37	(a). pulmonary artery (b). pulmonary vein
18	(a). Yes (b). Sound can be stored on cassettes, magnetic discs (CDs)	38	Veins

19	Less effort is used to carry heavy weights, it overcomes friction	39	<ul style="list-style-type: none"> (a). X-Ureter, Y-urethra (b). Stores urine before passing it out (c). Drink plenty of water, do regular exercises
20	A tap	40	<ul style="list-style-type: none"> (a). It helps to discover new events (b). Helps to know about different diseases, how to prevent and cure them (c). Helps to know about different body parts and how they function.

SUGGESTED ANSWERS FOR PLE 2013

1	Pliers, to loosen or tighten the bolts	20	Conduction, convection
2	Because a piece of dry wood is less dense than water while iron nails are denser than water.	21	a. Radiation b. Conduction
3	Throwing left over foods in water, bathing in a lake	22	Aluminium saucepans are good conductors of heat.
4	The sun	23	For future use
5	I-incident ray, angle r- angle of reflection	24	a. Volume b. g/cc or g/cm ³
6	Angle i and r are equal. (Angle of reflection is equal to the angle of incidence)	25	$D = \frac{M}{V} = \frac{270g}{300cm^3} = 0.9g/cm^3$
7	a. It appears straight b. of refraction	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.
8	refraction, air	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.
9	a. R-Emergent b. E-Reflected emergent ray	28	a. To repair worn out tissues, for body growth. b. To repair worn out body tissues
10	a. Cell-stores chemical energy and converts it to electrical energy b. Wire- transmits electrons	29	a. They are all cold blooded animals. b. Animal C has viviparous reproduction. c. Amphibians d. Entering the shell
11	It can cause fire, shocks, death and damages electrical appliances.	30	a. Stigma b. attract pollinators c. Seeds
12	a. Switches-To break and complete the circuit. b. Sockets- Outlets for tapping/getting electricity	31	a. These are diseases spread through sexual intercourse with an infected person. b. AIDS, Syphilis, gonorrhoea c. Abstain from sex
13	Don't touch live electric wires, don't touch switches with wet hands	32	a. Bean shaped b. To filter blood, regulate the amount of water and mineral salts in the body.
14	Hydro-electricity	33	Drinking boiled water, washing hands before eating, covering food
15	Sound energy, vibrating bodies	34	a. For hearing or for body balance b. Outer ear, middle ear, inner ear c. Middle ear/ ear drum
16	a. Liquids-Yes/True b. Vacuum-No	35	a. Green dodo b. Green dodo contains iron.

			c. To repair worn out body tissues.
17	At night there is quietness and no objects that distract sound movement unlike daytime.	36	For body movement, to give the body shape
18	Boiling/heating	37	a. Sweat glands become active, pubic hair around privates, increase in size and weight b. (i). Beards develop, voice breaks and deepens (ii). Waist line and heaps develop, voice breaks and softens.
19	a. True b. False		

SUGGESTED ANSWERS FOR PLE 2012

1	(a) Spanner (b) Loosening and tightening bolts and nuts	17	False / Wrong										
2	-Terracing -Contour ploughing -A forestation -Re-afforestation	18	Like, Repel										
3	Breeding places for mosquitoes -Bad smell	19	By heating the solution										
4	(a) Weighing scale (b) Weight, Mass	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.										
5	(a) Opaque- Wooden door (b) Glass in window (c) Sun glasses	21	-Boiling -Shallow frying -Deep frying										
6	Teacher's guidance	22	(a) Tuberculosis (b) It spreads diseases (c) -Trachoma -Dysentery -Cholera										
7	Teacher's guidance	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										
8	Solid / Liquid / Gas	24	(a) Having Wings -Warm blooded - Feeding using beaks -Breathing through the lungs (b) Both use the lungs for breathing (c) It chews cud (d)(i) Marsupials (ii) Kangaroo, Koala bears										
9	Boiling Distillation	25	(a) Stigma (b)(i) Pistil (ii) Ovary, Stigma, Style, Ovules										
10	Freezing Smoking	26	<table border="1" style="width: 100%;"> <tr> <td>Insect pollinated</td> <td>Wind pollinated</td> </tr> <tr> <td>Have a scent / smell</td> <td>Have no scent</td> </tr> <tr> <td>Brightly coloured petals</td> <td>Dull coloured petals</td> </tr> <tr> <td>Short sticky stigma</td> <td>Long hairy stigma</td> </tr> <tr> <td>Produce few pollen</td> <td>Produce a lot of pollen</td> </tr> </table> (b) The union of both the male and female gametes to produce a zygote	Insect pollinated	Wind pollinated	Have a scent / smell	Have no scent	Brightly coloured petals	Dull coloured petals	Short sticky stigma	Long hairy stigma	Produce few pollen	Produce a lot of pollen
Insect pollinated	Wind pollinated												
Have a scent / smell	Have no scent												
Brightly coloured petals	Dull coloured petals												
Short sticky stigma	Long hairy stigma												
Produce few pollen	Produce a lot of pollen												
11	Light energy	27	A- Storage fleshy leaves B-Central bud/Terminal bud C-Bulb stem D-Fibrous roots										
12	(a) Radiation (b) Convection	28	(a) To store food for the plants (b) For breathing										
13	Solar eclipse	29	(a) A-Duodenum B-Small intestines C-Large intestines D-Colon E- Appendix F-Rectum (b) Absorption of water (c) Stores faeces temporarily										
14	Refraction	30	(a) P-Egg/Ovum Q-Fallopian tube/Oviduct R-Uterus/Womb S-Cervix (b) Produce an egg (c) Implantation (d) Internal fertilization										

			(e) Frogs (amphibians) undergo external fertilization which does not involve gametes
15	-Using compact discs -Using video cassette discs -Using flashes	31	(a) P-Conjunctiva Q-Lens R-Vitreous humour S-Optic nerve (b) Allows bending of light rays to form images on the retina (c) Optic nerve
16	Teacher's guidance		

SUGGESTED ANSWERS FOR PLE 2010

1	Mason	22	(a) 6 legs (b) Thorax (c) Because it has 8 legs
2	No	23	(a) Transfer of pollen grains from the anther heads to the stigma of a flower (b) Sun birds -Moth -Bees -Humming birds
3	Candle, Match Stick, Torch	24	(a) (i). Animals die and rot to give manure to plants (ii). Animals give out carbon dioxide which plants use during photosynthesis (b) Water -Sunlight -Carbon dioxide -Chlorophyll
4	Petrol-Used in cars, Generators	25	(a) Using Spiracles (b) Trachoma, Diarrhoea, Dysentery, Cholera
5	(a). Ray A -Incident ray (b). Ray B -Reflected ray (c). Angle C -Angle of reflection (d). Angle D -Angle of incidence	26	A forestation -Re-afforestation
6	To allow light into the house	27	(a) Q-Head, R-Front legs/Fore legs S- Compound eyes T-Abdomen (b) For feeling
7	Bulb	28	(a) -Removing stagnant water -Clearing bushes (b) Female anopheles mosquito (c) Plasmodium parasite
8	(a). An ordinary aluminium kettle loses heat by convection, radiation, conduction (b) Radiation	29	(a) Cholera Typhoid Dysentery (b) Boiling drinking water
9	False	30	(a) A-Eggs B-Nymph C-Adult (b) P-Feelers/ Antennae S- Spiracles (c) Stage B does not have wings unlike C
10	True	31	Problems chewing food -problems grinding food
11	True	32	(a) gills (b) -Through the lungs -Through the skin (c) By use of fins (tail fins)
12	True	33	(a) -Blood -Heart -Blood vessels (b) Capillaries (c) Aorta
13	Teacher's guidance	34	-Weakness -Poor growth -Watery stool
14	Bathing in a water sources	35	(a) -For breathing -To support burning (b) Used during photosynthesis
15	Aluminium Rod, Dry wood	36	Perfumes -Smoke from old cars -Fumes from factories -Smell from latrines
16	(a) -For lifting -For Cooking -For operating machines (b)- Causes fires - Causes shock and death - Damages electrical appliances	37	-To kill germs -Make it soft and easily digested -Give it a good taste and smell
17	(a) Yes (b) When a stone is dropped in water (pool) Sound is made (heard)	38	Small intestines- absorption of food Pancreas- produce pancreatic juice
18	Iron, Steel	39	(a) Abstain from Sex (b) (i). Through unprotected sex with an infected person. (ii). Sharing sharp instruments with an infected person. (c) White blood cells
19	(a) Oxygen -Nitrogen (b) Carbon dioxide	40	(a) Teacher's guide (b) To lift cars while repairing them
20	(a) Because at night there is limited noise (quietness) (b) Because of reflection	41	(a) Root nodules (b) Legumes (c) Nitrogen fixing bacteria (d) Absorb nitrogen and convert it into nitrates
21	(a) Grams(g/cc) or g/cm ³ (b) Teacher's guide		

SUGGESTED ANSWERS FOR PLE 2009

1	(a) –Helps plants to grow -Reduces on dust (b) –Causes soil erosion - Too much rain damages our property	22	(a) To show wind direction (b) Wind Sock
2	No, because it reflects its light from the sun	23	Brushing the teeth after every meal
3	(a) Because metals can't easily break (b) –Because metals are good conductors of heat -Metals can't break easily	24	Chlorophyll
4	(a) Heating/ Boiling (b) Ice	25	To prevent bad smell / To remove germs / To feel fresh
5	(a) This is the amount of substance that a body contains (b) Grams/ cm ³ (c) Because it is the number of times an object displaced an equal volume of water	26	To kill germs
6	A stone sinks in water because its density is more than that of water while dry wood floats because its density is less than that of water	27	Webbed feet
7	To avoid heat from burning the user.	28	To avoid development of inferiority complex
8	(a) Teacher's Guide (b) No, because water is a good conductor of electricity	29	(a) True (b) False (c) True (d) True
9	(a) False (b) False (c) True	30	(a). Man Pigs (b) Lion, Dogs, Cats, hyenas etc (c) Cow, Cat, Dog, Hen, Goat etc
10	Scissors -Razor blade	31	(a) Alimentary canal (b) Heart (c) Skin, Kidney, Lungs
11	(i). Unlike poles of a magnet attract while like poles repel (ii). A magnet has got two poles: North and South Pole	32	Sugar cane, Cassava
12	- For breathing - To support burning	33	(a) Lack of Vitamin B ₁ (b) Lack of iodine (c) Eating sea weeds, iodised salts
13	(a) Teacher's guide (b) Because of refraction (Passing from one transparent medium to another)	34	(a). Flowers- For producing fruits Leaves -For breathing Fruits- Contain seeds for multiplication (b) A-Stigma B-Anther heads C-Ovary D-Flower stalk (c) A-Receive pollen grains B- Produce pollens C-develop into fruits (d) Specialised gametes used in reproduction (e) The ovules develop into seeds and ovary into a fruit
14	No, because black clothes absorb heat faster	35	(a) Fins (b) Feathers, Hollow bones, Streamlined body, wings
15	It is sharp and pointed to tear flesh	36	(a) That is a deficiency caused due to lack of proteins (b) Swollen Belly, the child is malnourished.
16	By changing its colour	37	(a) Feed on plant leaves (b) They are herbivorous / Bodies are covered with fur

SUGGESTED ANSWERS FOR PLE 2008

1	(a) Watering can, Panga, Hoe (b) Plane, Handsaw, Chisel	24	Transpiration is the loss of excess water from plants by evaporation								
2	Sodium	25	Causes bad smell								
3	Candles, Torch	26	Mid-day								
4	Iron, Nail, Steel wire	27	To remove waste products from blood								
5	Liquid fuel -Kerosene (paraffin), diesel, petrol Solid fuel- Charcoal, Firewood	28	Add nutrients in the soil								
6	Water is a solid because it freezes to form ice.	29	-Has no smell -Has no colour -Has no taste -Has no shape								
7	Teacher's guidance	30	(a) Soil erosion is the washing away of the top soil by the agents of erosion (b) -Running water -Strong winds -Man's activities like deforestation - Animals								
8	Transfers energy from one circuit to another - Change/Convert high and low voltage	31	A clinical thermometer has a kink whereas other thermometers do not have kinks								
9	Because of refraction	32	(a) Movable Joint (Ball and Socket Joint) (b) P-Pelvis Q- Back Bone/Vertebra (c) This joint moves in all directions while the elbow joint moves in only two directions (to and fro)								
10	Through air- radiation Through a metal- Conduction Through water- Convection	33	-For drinking -For Cooking -For washing								
11	Sound energy	34	-Syphilis -Gonorrhoea -AIDS								
12	Refraction of sound waves	35	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Food</th> <th>End product after digestion</th> </tr> </thead> <tbody> <tr> <td>Carbohydrates</td> <td>Glucose</td> </tr> <tr> <td>Proteins</td> <td>Amino acids</td> </tr> <tr> <td>Fats</td> <td>Fatty acids and glycerol</td> </tr> </tbody> </table>	Food	End product after digestion	Carbohydrates	Glucose	Proteins	Amino acids	Fats	Fatty acids and glycerol
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13	Umbra is the darkest inner part of a shadow while Penumbra is the lightest outer part of a shadow	36	(a) Distillation method (b) Evaporation (c) To cool the hot vapour (d) Distilled water								
14	The boy sitting near the pivot with a weight of 400N and a distance of 1.5m	37	(a) -Both require oxygen to take place -Both have chemical Changes (end results can't be changed) (b) -Because of presence of oxygen -Because of presence of water/moisture								
15	Left Ventricle -Right Ventricle -Right auricle/Atrium - Left auricle/Atrium	38	(a) Pectoral fin (b) Change of swimming direction and forward movement (c) For smelling (d) Ducks, Seals, Sea lions, Pelicans, Water snakes, Crocodiles, Frogs								
16	-Serious colourless watery diarrhoea -Physical weakness	39	(a) By planting the suckers (b) Banana weevils, Banana strips (c) Stems								
17	-Drink boiled water - Heat cold food before eating - Use latrines to dispose off faeces	40	(a) C (21%) (b) Used in electric bulbs (c) D- Nitrogen A- Carbon dioxide								
18	(a) Scurvy (b) Fruits eg Guava, Oranges, Paw paws, Red Pepper, Green Vegetables	41	(a) Both will lack motherly care (b) Loss of weight, poor feeding (c) Use family planning methods								
19	Both of them spread diseases (vectors)	42	(a) -Eating uncovered food								

			-Eating food without washing hands (b) Diarrhoea, Dysentery, Cholera (c) Because houseflies also fed on the food
20	Balance air pressure between the outer ear and middle ear	43	(a) B-Larva C-Pupa (b) Stage B (c) Because it has 6 legs, three body parts
21	Causes soil erosion	44	(a) In-born immunity -Acquired immunity (b) Malaria
22	(a) Pupa (b) Spiracles (c) For breathing	45	(a) Mushrooms, Mosses (b) Beans (c). Decaying places
23	(a) Echo (b) Because of refractions		

SUGGESTED ANSWERS FOR PLE 2007

1	Aluminium, Copper, Steel	18	Pinna –Traps sound waves Ear drum- Vibrates sound Auditory nerve- Sends sound vibrations to the brain for interpretation															
2	Firewood, Charcoal	19	- To give the body shape - Allows in body movement															
3	Because ice cools and becomes a solid (freezes) and floats on water	20	(a) An accident is an un sudden happening/something that happens when it wasn't planned (b) -Animal bites -Fainting -Fractures -Poisoning (c) - Playing on the road -Reckless driving															
4	To allow little light	21	(i). Eating food with washed hands, (ii). Covering food. (iii). Washing raw food before eating them eg fruits															
5	(a) Pulley (b) For lifting heavy objects	22	(a) A magnet is a piece of metal that is capable of attracting and pulling other magnetic substances (b) Iron, Steel, Nickel, Cobalt (c) To remove metallic objects from the body e.g Eyes															
6	A- Light Clouds B- Thick Clouds C- Water Vapour	23	(a)-Television -Electric Cookers -Radios - Refrigerators (b) - Water -Copper Wires															
7	Sun	24	(a) For adding carbon dioxide gas/preservatives (b) Carbon dioxide (c) Photosynthesis															
8	Teacher's guidance	25	(a) Brain -Spinal cord (b) Alzheimer's, Parkinson's, Locked-In Syndrome, Meningitis, Arachnid cysts (c) Contains Ethanol which poisons the brain and destroy brain cells															
9	For the water inside the kettle to get closer to the heat and less heat will be lost heating the air	26	(a) Bean seeds- Epigeal germination Maize Seeds- Hypogeal germination (b) Epigeal germination the cotyledons appear above the soil while hypogeal germination cotyledons remain in the soil.															
10	Grafting	27	(a) Melts (b) Physical change (d) Liquid, Solid, Gas															
11	(a) Intestinal worms, bleeding (b) Lack of enough blood in the body	28	(a) False (b) True (c) False (d) True (e) True (f) False															
12	A- Mammals B- Birds C- Mammals (rodents)	29	A-Femur B-Synovial Fluid C-Cartilage D-Bone marrow															
13	Teacher's guidance	30	(a) See saw, Hammer, Pair of Scissors (b) Wheel Barrow (c) Fishing Rod, Human arm															
14	Stem cuttings	31	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>Digestive system</td> <td>Stomach</td> <td>Pancreas</td> </tr> <tr> <td>Name of gland</td> <td>Gastric gland</td> <td>Pancreas</td> </tr> <tr> <td>Digestive juice</td> <td>Gastric juice</td> <td>Pancreatic juice</td> </tr> <tr> <td>Enzyme</td> <td>Pepsin / renin</td> <td>Trypsin/amylase/lipase</td> </tr> <tr> <td>Class of food</td> <td>Proteins</td> <td>Proteins</td> </tr> </tbody> </table>	Digestive system	Stomach	Pancreas	Name of gland	Gastric gland	Pancreas	Digestive juice	Gastric juice	Pancreatic juice	Enzyme	Pepsin / renin	Trypsin/amylase/lipase	Class of food	Proteins	Proteins
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15	Use of pills -Use of condoms - Use of injections	32	K-Sun J-Moon M-Umbra N-Penumbra P-Earth															
16	-Filtration -Distillation -Sedimentation	33	(a) Frogs, Snakes (b) Hens, Frogs, Snakes (c) Lions, Bats, Cows, Pigs (d) Spiracles															
17	(a) White blood cells (b) Fight against diseases																	

SUGGESTED ANSWERS FOR PLE 2006

1	Rotation of the earth	18	(a). Fertilisation is the union of both the male and female gametes to produce a zygote. Implantation is the attachment of the embryo on the walls of the uterus to develop. (b). 9 months
2	To allow in light into the house because glasses are transparent.	19	(a). Human Immune Deficiency Virus (b). Abstain from sex, use of condoms, screening blood before carrying out blood transfusion
3	A- Incident ray B-Reflected ray	20	-For farming -For building
4	(a). Light (b). Yes	21	Human milk is cheaper than cow's milk Human milk is clean and safer than cow's milk
5	Solid (ice)	22	-Dermis -Subcutaneous layer
6	$D = \frac{\text{mass}}{\text{volume}} = \frac{9.0\text{g}}{10\text{cm}^3} = 0.9 \text{ g/cm}^3$	23	(a). Sand soil (b). Because sand soil has got bigger particles (c). Sand soil has bigger soil particles which easily allow water to pass through compared to clay soil
7	A person sinks into a lake because his/her density is more than that of water while a boat does not sink because its density is less than that of water	24	(a) Draining swamps (b) Throwing polythene bags (udushashi) on the soil. (c) Crop rotation (d) Producing a lot of smoke from the factories
8	(a). Because white clothes reflect sunlight (heat) (b). Because blankets are bad conductors of heat and retain heat.	25	(a)- It does not have chlorophyll -It reproduces by means of spores (b)-Mosses -Conifers
9	Magnet	26	(a) To trap dust in the nose (b) Tuberculosis, lung cancer, whooping cough (c) (i) Contract (ii) Expands
10	-A vacuum flask does not allow heat loss by means of radiation. -A vacuum flask does not allow heat loss by means of convection. -A vacuum flask does not allow heat loss by means of conduction.	27	(a) Used in fermentation -Help in decomposition / decay (b)-Causes food to rot -Causes diseases -Poisonous eg. Fungi like toadstools
11	(a). Sound energy (b). Iron, copper (c). Electricity can cause fire outbreaks, electricity can cause electric shock	28	(a)-They grow -They Reproduce -They feed (b) Plants make their own food while animals get their food from plants
12	Gills-Fish, skin-earth worms, lungs and skin-frogs	29	(a) To get oxygen (b)(i) Malaria (ii) AIDS (c) Platelets, Plasma
13	(a). Leaf (b). Oxygen	30	(a) Cockroach A (b) Because it could not breathe since the spiracles are in water (c) It can cause diseases eg diarrhoea (d) Housefly
14	Kidney	31	(a)-Smoking -Freezing -Sun drying -Tinning/ Canning (b) Proteins
15	Roots-To absorb water and mineral salts from the soil. Stem-To hold other parts of the plant Flowers-For reproduction Fruits-Contain seeds for multiplication	32	Heart – Circulation of blood / Kidneys – urine / Skin – sensory organ / Lungs – Carbon dioxide / Brain - Memory
16	Agents of pollination are things which help to transfer pollen grains from the anthers to the stigma of a flower	33	(a)P- Stigma R- Anther Heads S- Style (b) To attract insects for pollination (c) Part P (d)(i) Stamen (ii) Pistil
17	-Drinking boiled water -Covering food -Washing hands before eating	34	(a) Hepatic portal vein (b) Oxygenated blood (c) Constipation, Vomiting

SUGGESTED ANSWERS FOR PLE 2005

1	(a). True (b). False (c). True (d). False	18	Because a stone is denser than water																														
2	Decomposers – Bacteria / Herbivore – Goat / Carnivore – Leopard / Omnivore - Man	19	They have a back bone																														
3	(a). For cutting, chewing and grinding food. (b). A-Crown, B-Root (c). To remove germs	20	Animals release carbon dioxide gas which is needed during photosynthesis																														
4	(a). Syphilis, gonorrhoea, AIDS (b). Abstain from sex, be faithful to your married partner	21	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Food</th> <th colspan="4">Digested by</th> </tr> <tr> <th></th> <th>Maltase</th> <th>Lipase</th> <th>Amylase</th> <th>Pepsin</th> </tr> </thead> <tbody> <tr> <td>Starch</td> <td></td> <td></td> <td style="text-align: center;">x</td> <td></td> </tr> <tr> <td>Sugar</td> <td></td> <td></td> <td style="text-align: center;">x</td> <td></td> </tr> <tr> <td>Protein</td> <td style="text-align: center;">x</td> <td></td> <td></td> <td style="text-align: center;">x</td> </tr> <tr> <td>Fat</td> <td></td> <td style="text-align: center;">x</td> <td></td> <td></td> </tr> </tbody> </table>	Food	Digested by					Maltase	Lipase	Amylase	Pepsin	Starch			x		Sugar			x		Protein	x			x	Fat		x		
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5	Local cow is smaller than the imported cow Local cow gives less milk compared to imported cow Imported cow grows faster than local cow.	22	(a). Dehydration is the loss of water and mineral salts from the body. (b). Excessive vomiting, excessive diarrhoea. (c). Dry skin																														
6	Forests control soil erosion Forests help in rain formation Forests are homes for wild animals	23	(a). Vitamins (b). Serving food in dirty containers (c). Washing hands before eating food																														
7	They cause soil pollution They prevent water from entering the ground, They make the environment dirty	24	(a). A Vacuum flask is an object that keeps hot things hot and cold things cold. (b). Vacuum (c). The cork prevents heat loss by conduction																														
8	Running water (Hydro-electricity) Sun (solar) Wind (wind mill)	25	(a). Because it uses the gills for breathing in water and lungs on land. (b). Amphibians (c). the tail fin																														
9	A-Fallopian tube/oviduct B-Uterus wall C-Vaginal opening	26	(a). Involuntary action (b). The brain (c). Skeletal muscle																														
10	(a). Transparent body is anything that allows light to pass through it. (b). Clear glass	27	(a). Malaria, cholera, dysentery, elephantiasis, yellow fever, bilharzias (b). Remove the stagnant water																														
11	(a). Incident ray (b). Teacher's guidance (c). Reflected ray	28	(a). Vaccinating them, separating the sick animals from the healthy ones (b)By keeping milk in milking cans																														
12	(a). Sun, moon, earth (b). When the earth blocks the sun's light from the earth's surface.	29	(a). To allow in oxygen (b). To avoid being burnt (c). Heat energy (d). By means of convection																														
13	Because plastics are poor conductors of electricity	30	(a). Asexual reproduction is the type of production that does not involve the use of gametes. (b). Onions – seed / Sweet potatoes - vines, Banana plant - suckers																														
14	By means of radiation	31	Goitre – iodine / Marasmus - Carbohydrates / Kwashiorkor – proteins / Rickets – Vitamin D																														
15	Because they prevent burning the user's skin	32	AIDS-Acquired Immune Deficiency Syndrome. HIV-Human Immune Deficiency Virus STDs-Sexually Transmitted Diseases																														
16	(a). Clinical thermometer (b). To measure body temperature (c). Rain gauge	33	(a). B-Liver, E-Cloaca (b). To make it moisten and soft (c). Because that is where digestion of food takes place. (d). Mineral salts																														
17	Refraction of sound	34	(a). Gestation period is the period from fertilisation to birth. (b). 9 months (c). An embryo is a developing fertilised egg while a foetus is a developing embryo																														