

Science and Elementary
Technology

PSET

19/07/2022 09: 00-11: 00 AM



Pupil's complete index number

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

Surname:.....

Other names:.....

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

PRIMARY LEAVING NATIONAL EXAMINATIONS, 2021-2022
SCIENCE AND ELEMENTARY TECHNOLOGY

Duration: Two hours

Marks:

/100

INSTRUCTIONS

- 1) Do not open this question paper until you are told to do so.
- 2) This paper has **two sections: A and B**.
- 3) Questions in both sections are compulsory and must be answered as instructed.
- 4) Read each question carefully before answering it.
- 5) Answer the questions in the space provided on this question paper.
- 6) You must use a **blue** or **black** pen and a pencil for drawing.

SECTION A: ATTEMPT ALL QUESTIONS (50 MARKS)

1. List down any two examples of agricultural tools. (2 Marks)
(i) Hoe, machete, panga, rake, watering can, spraying pump, spade,
(ii) Trowel, file, watering wheel, sickle, tractor, axe, pickaxe, forked hoe. Etc.
2. What is the difference between a “Spirit level” and a “Plumb line”? (2 Marks)
Spirit level is a carpentry tool that is used to check whether the surface is horizontal or vertical while a plumb line is a masonry tool used to find out whether the wall is upright or not.
3. Explain one use of a flash disk. (1 Mark)
Flash disk is used for storing data (music, videos, pictures, documents etc.)
4. How would you reduce friction in a machine and other bodies? (2 Marks)
→ By putting oil or grease on a turning part of a machine.
→ By keeping a machine in a dry and clean place.
5. How is communication important to people? (2 Marks)
→ It is a source of information
→ It creates friendship among the people
→ It helps people to send and receive information easily
→ It helps in marketing and advertisement of products
6. Complete the table below: (3 Marks)

Tool	Use
Clamp	Holding a piece of wood to prevent its movement
Hack saw	Cutting metals
Bellow	Blowing air into the fire

7. Which two ways can you use to prevent accidents in a mechanic’s workshop? (2 Marks)
(i) Wearing protective gear/clothes like gloves, boots, overall
(ii) Not keeping tools in a path of other workers
(iii) To never throw mechanics tools between one mechanic to another
8. Explain how toys are useful to children. (2 Marks)
(i) Toys help children to play and relax
(ii) Toys are a source of happiness to children

9. List two popular programming languages for children. (2 Marks)

- (i) **Turtle Art, Scratch**
- (ii) **Etoys, Python, Java Script**

10. Match the category of materials below with their corresponding use. (3 Marks)

Material	Use
a) Spatula, hoe handle	i) Learning objects
b) Square, Cube, Triangle	ii) Toy objects
c) Doll, Teddy bear	iii) Utility objects

11. List any two materials we use to make learning objects. (2 Marks)

- (i) **Papers, manila papers, threads, banana fibers, wool, wood**
- (ii) **Sorghum straws, cloth, cartons, bottle tops, sticks, wires, clay**

12. Which techniques would you use when making a basket? (2 Marks)

- (i) **Coiling, plaiting, twining**
- (ii) **Wicker**

13. Explain how a computer is useful in our daily life. (3 Marks)

- (i) **It is used for storing data**
- (ii) **It is used for communication**
- (iii) **It is used in scientific research and banking**
- (iv) **It is used in e-learning and entertainment**

14. Match the ICT terms below with their meaning. (2 Marks)

Terms	Meaning
a) Hardware	i) Computer programs
b) Internet	ii) Physical components of a computer
c) Software	iii) Worldwide interconnection
d) Application	iv) Instructions written by computer specialist

15. Air is a mixture of gases. Give any two examples of gases found in air. (2 Marks)

- (i) **Nitrogen, oxygen, carbon dioxide**
- (ii) **Rare gases like Argon.**

16. Give any one chemical substance from industries that destroys the Ozone layer. (1 Mark)

Fumes, carbon monoxide, Sulphur dioxide, nitrogen dioxide etc.

17. In order to send and receive an e-mail, both the sender and receiver must have _____ (2 Marks)

a) Bank account

b) E-mail account

c) Post office

d) E-banking

18. Which of the following is the percentage of Nitrogen in the atmospheric air? (1 Mark)

a) 78% b) 21% c) 0.1%

19. Give any two diseases associated with polluted water. (2 Marks)

(i) Cholera, dysentery, typhoid

(ii) Diarrhoea, intestinal worms (parasites)

20. Explain the difference between “Evaporation” and “Condensation”. (2 Marks)

Evaporation is the process when a liquid changes to gas while condensation is the process when a gas changes to a liquid.

21. Give any two human activities that can cause Global warming. (2 Marks)

(i) Deforestation, overgrazing

(ii) Burning forests, growth of industries

22. Give any two types of soil. (2 Marks)

(i) Loam soil, clay soil

(ii) Sand soil

23. Explain why fertilizers are used in agriculture. (2 Marks)

(i) Fertilizers increase soil fertility (They boost productivity of the soil)

(ii) They help crops to grow well and fast

(iii) They help a farmer to get more harvest

24. Why has the government of Rwanda Stopped the use of plastic bags? (2 Marks)

→ **Because plastic bags do not decompose**

→ **Because plastic bags cause soil pollution**

25. Why is it necessary for all homes to have toilets/latrines? (2 Marks)

Because toilets keep wastes (Faeces and urine) which contains germs that cause diseases. Because it is good to maintain hygiene and sanitation.

SECTION B: ATTEMPT ALLQUESTIONS (50 MARKS)

26. Match the diseases with their symptoms. (2 Marks)

Diseases

Symptoms

- | | | |
|---------------|------------------|-------------------------------------|
| i) Tapeworms | _____ | a) Difficulty in breathing |
| ii) Pneumonia | _____ | b) Worms might be seen in droppings |

27. Suggest any two conditions of a good chicken house. (2 Marks)

(i) It should be strong and wide

(ii) It should have clean water, and feeders

(iii) It should have enough air. It should be built in a safe place.

(iv) It should be roofed. It should have security.

28. Match each animal with its respiratory organs. (2 Marks)

Animals

Respiratory organs

- | | | |
|-------------|------------------|-----------------------|
| a) Tilapia | _____ | i) Book lungs/trachea |
| b) Spider | _____ | ii) Gills |
| c) Mosquito | _____ | iii) Spiracles |
| d) Man | _____ | iv) Lungs |

29. Why is the government of Rwanda emphasizing that there should be at least one cow per family? (1 Mark)

→ **A cow provides meat and milk which contain nutritious food elements**

- Because cow dung is used as manure to increase soil fertility
- Because a cow is used as a dowry in wedding
- Because cow skin is used to make bags, shoes, belts and drums.

30. Name two animals that breathe through spiracles. (2 Marks)

- (i) Butterflies, bees, moths
- (ii) Wasps, houseflies, praying mantis etc.

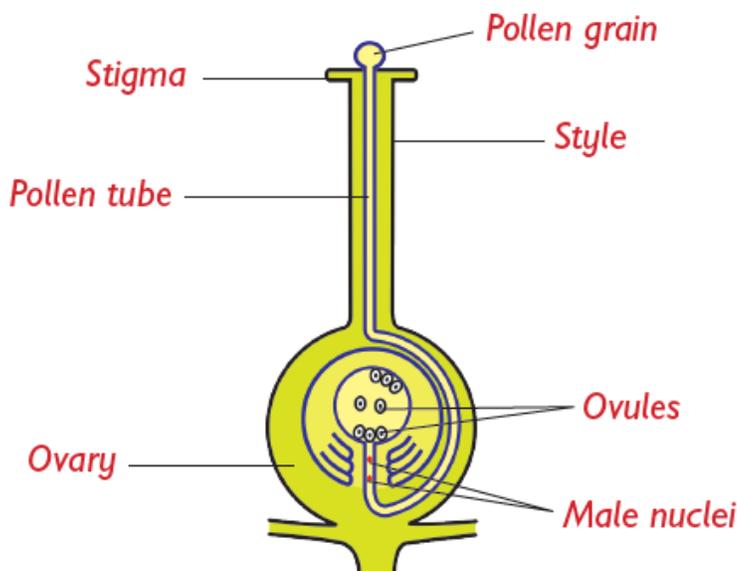
31. What is the difference between “Photosynthesis and “Transpiration”? (2 Marks)

Photosynthesis is the process by which green plants make their own food by using water, carbon dioxide and chlorophyll while transpiration is the loss of water from plant leaves in a form of water vapour.

32. Match each part of the flower with its function. (3 Marks)

Parts of a flower	Function
a) Petals	i) Contains ovules
b) Sepals	ii) Receives pollen grains
c) Stigma	iii) Holds stigma in position
d) Style	iv) Produces pollen grains
e) Ovary	v) Protect young flower
f) Anther	vi) Attract pollinators

33. Draw the female part of a flower and name its parts. (2 Marks)



34. Give the difference between “Pollination” and “Fertilization”. (2 Marks)

Pollination is the transfer of pollen grains from the anthers to the stigma while fertilization is the union or fusion of male and female sex cells.

35. Study the table below and fill in the missing information. (4 Marks)

Organ	Sense	Nerve
Eye	Sight	Optic nerves
Tongue	Taste	Gustatory/ lingual
Ear	Hearing	Auditory nerves
Nose	Smell	Olfactory nerve

36. Complete the sentences below with appropriate terms. (2 Marks)

a) Organs that help us to see, hear, smell, taste, and feel are called “**Sensory organs**”.

b) Our body is supported by a framework of bones called the “**Skeleton**”

37. Give the difference between “Short-sightedness” and “Long-sightedness”. (1 Mark)

Short-sightedness is an eye defect when a patient can see well objects which are near while long-sightedness is an eye defect when a patient can see well distant objects.

38. Observe the following food substances in the table and give the end products after digestion. (3 Marks)

Food substances	End product
Carbohydrates	Glucose
Proteins	Amino acids
Fats	Fatty acids and glycerol

39. Give any one important hormone that helps in the growth of the body during adolescence in both boys and girls. (2 Marks)

In boys **Testosterone**

In girls **Progesterone**

40. Mention any three functions of blood in the human body. (3 Marks)

(i) Blood transports oxygen and nutrients to the body tissues

(ii) Blood carries cells and antibodies that fight infections

(iv) Blood transports carbon dioxide and other wastes from cells to excretory organs

(v) Blood regulates body temperature

41. Describe what happens to the ribs and lungs when we breathe in and out. (2 Marks)

Breathing in: ***The ribs move upwards and outwards while the lungs expand in size.***

Breathing out: ***The ribs move downwards and inwards while the lungs reduce in size.***

42. Suggest two ways of preventing the spread of Sexually Transmitted Diseases (STDs)

(2 Marks)

(i) Abstaining from sexual intercourse

(ii) Being faithful to your partner

(iii) Avoid drug abuse

(iv) Use of condom during sexual intercourse

43. Give the difference between sperm and ovum in terms of their shape and size. (2 Marks)

→ Ovum is bigger than sperm (Ovum is bigger whereas sperm is smaller)

→ Sperm is long with tail and head while ovum is spherical and has no tail.

44. Match the process in A with its meaning in B.

(2 Marks)

Process (A)	Process (B)
a) Ovulation	i) Union of sperm and ovum
b) Implantation	ii) Period from fertilization to birth
c) Fertilization	iii) The release of ovum by the ovary
d) Pregnancy	iv) Attachment of the embryo to the uterus

45. State two consequences of early teenager pregnancy. (2 Marks)

(i) Dropping out of school

(ii) It causes emotional stress

(iii) It leads to illegal abortion and family rejection

(iv) It may cause death of the mother and a baby

46. Matter can change from one state to another. State any one example to support this statement. (1 Mark)

Liquid water is in liquid state, when you heat it for a long time, it becomes vapour which is in gaseous state. When you cool water until 0°C and below, it becomes ice.

47. Give two reasons why some objects sink in water. (2 Marks)

(i) Objects sink in water because their density is higher than that of water

(ii) Objects sink in water because they have tightly packed molecules

48. Give any two properties of liquid. (2 Marks)

(i) Liquid has no definite (fixed) shape

(ii) Liquid flows easily

(iii) Liquid has definite volume and mass

49. Give any two uses of electricity in our daily life. (2 Marks)

(i) It is used for lighting, welding, shaving hair. Ironing clothes

(ii) It is used for operating electric devices like TV, Radio etc. Refrigeration

50. An object has a mass of 95 g and a volume of 19 cm³. Calculate its density. (1 Mark)

The given	Unknown	Formula	Calculation
Mass= 95 g Volume= 19 cm ³	Density=?	Density $\frac{Mass}{Volume}$	$D = \frac{95 g}{19 cc}$ D= 5 g/cc