



SUREKEY EXAMINATIONS BOARD

2022

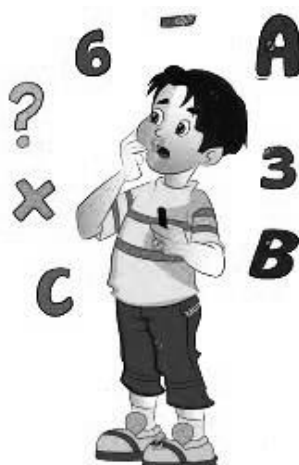
INTEGRATED SCIENCE

OFFICIAL P.L.E SPECIAL MOCK GUIDE

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**“Don’t speak for Quality, Let the Quality
Speak for itself”**

SECTION A: 40 MARKS

1. Name the body organ used to detect hot tea.
✓ **The skin.** (*Reject: the tongue*)
2. Which vector spreads bubonic plague to people?
✓ **rat flea / flea.** (*Reject: rats because they are the hosts*)
3. State the part on an insect that performs a similar function as the semi circular canal in the human ear.
✓ **halteres** (*Reject: halterer*)
4. Name the part of the moss plant that produces spores.
✓ **Spore case / spore sac / capsule.**
5. Give any **one** way in which fossil fuels can be conserved.
✓ **By using renewable energy resources.**
✓ **Harvesting and using them sparingly.**
✓ **Using alternative sources of energy.**

The diagram below shows a garden tool. Use it to answer questions **6** and **7**

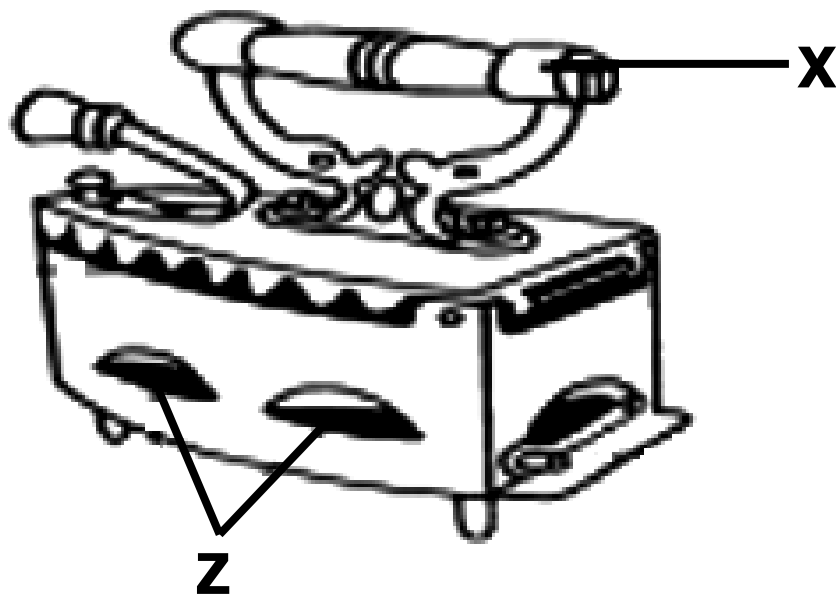


6. Name the garden tool above.
✓ **Sickle.**
7. Which type of annual crops are harvested using the above garden tool?
✓ **cereal crops / creals.**
8. What is the importance of putting the burnt or scalded part in clean cold water?
✓ **Cold water helps to cool the temperature around the injured part.**
9. Apart from humus, mention any **one** other non living component of soil.
✓ **Rock particles**
✓ **Mineral salts**
✓ **Water**
✓ **Air** (*Mnemonic: RWAM*)

10. In which way is a smoker useful when harvesting honey?
✓ **Produces smoke which makes honey bees docile / dormant / calm down / inactive.** (*Reject: calms down honey bees / makes honey bees docile*)
11. State the class of simple machines to which a ladder leaning against the wall belongs.
✓ **Inclined planes / slopes.**
12. Give a reason why female mosquitoes cannot spread HIV/AIDS to human beings yet they suck blood.
✓ **Mosquitoes lack receptors for HIV.**
✓ **HIV cannot survive outside blood.**
✓ **HIV is destroyed in the gut of the mosquito.**
(*Reject: mosquitoes suck little blood which does not contain HIV*)
13. How does debeaking help to control egg eating in chicken?
✓ **Makes the bird's upper beak blunt thus disabling it from pecking the eggshell.**
(*Reject: makes the bird's beak short / blunt*)
14. Why do soles of the feet develop thick surfaces after doing heavy manual work?
✓ **The skin cells die and form a cornified layer due to friction.**
15. Which intestinal worm enters the body through eating undercooked meat?
✓ **Tapeworm** (*Reject: tape worm*)
16. Why are plants called primary sources of food in the environment?
✓ **Plants are capable of making their own food.**
(*Reject: Plants make food for animals*)
17. State any **one** way in which reflection of light is important to people.
✓ **Enables drivers to see traffic behind them using the side mirrors.**
✓ **Enables us to view different objects around us.**
✓ **Reflection is applied in periscopes to see overhead objects**
✓ **Helps in spreading out light in torches and headlamps of vehicles, bicycles and motor cycles.**
18. Apart from germination, give any **one** other way in which water is useful to plants.
✓ **It enables plants to make glucose/food/carryout photosynthesis.**
✓ **Water helps in seed dispersal.**
✓ **Water helps in pollination of plants.**

- ✓ **Water helps plants to grow.**
- ✓ **Water helps plants to cool through transpiration.**
- ✓ **Water is part of cytoplasm in plants.**

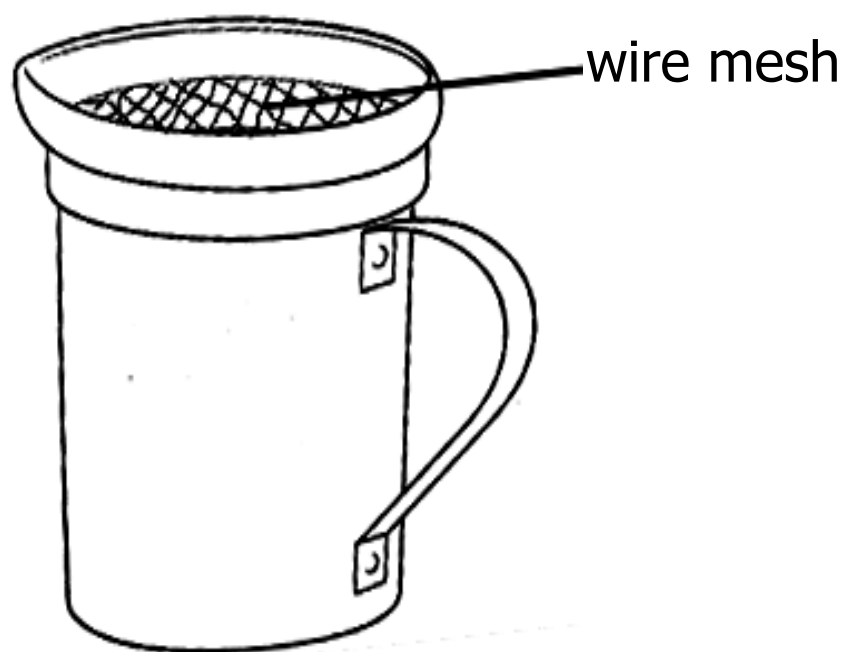
The diagram below shows an iron box. Study and use it to answer questions 19 and 20.



19. State the function of the holes marked **Z** on the above diagram.
 ✓ **Let in fresh air / let oxygen into the iron box which supports the burning charcoal.**
20. Why is part marked **X** made of wood?
 ✓ **To prevent the user's hands from getting burnt.**
 (*Reject: wood is an insulator / bad conductor of heat*)
21. In which way is the cotyledon in a bean seed similar to the endosperm in a maize grain?
 ✓ **Both store food for the embryo // Both store food // Both are food storage parts.**
22. State any **one** reason why a bat is regarded as a mammal and not a bird yet it flies.
 ✓ **A bat has mammary glands while a bird doesn't / has no.**
 ✓ **A bat has fur / hair on its body yet a bird has feathers on its body.**
 ✓ **A bat produces live young ones while a bird lays eggs.**
 ✓ **A bat breast feeds its young ones while a bird does not.**
 (*Reject: reject answers without comparisons*)
23. Which blood cells produce antibodies in the body?
 ✓ **White blood cells // leucocytes // White corpuscles.**
24. Give any **one** reason why breast milk is regarded as the best food for babies below two years.
 ✓ **Has all food values needed by the baby.**
 ✓ **Has antibodies that protect the body against diseases.**

25. Name the device used to reset the six's thermometer.
✓ **Magnet.** (*Reject: Index*)

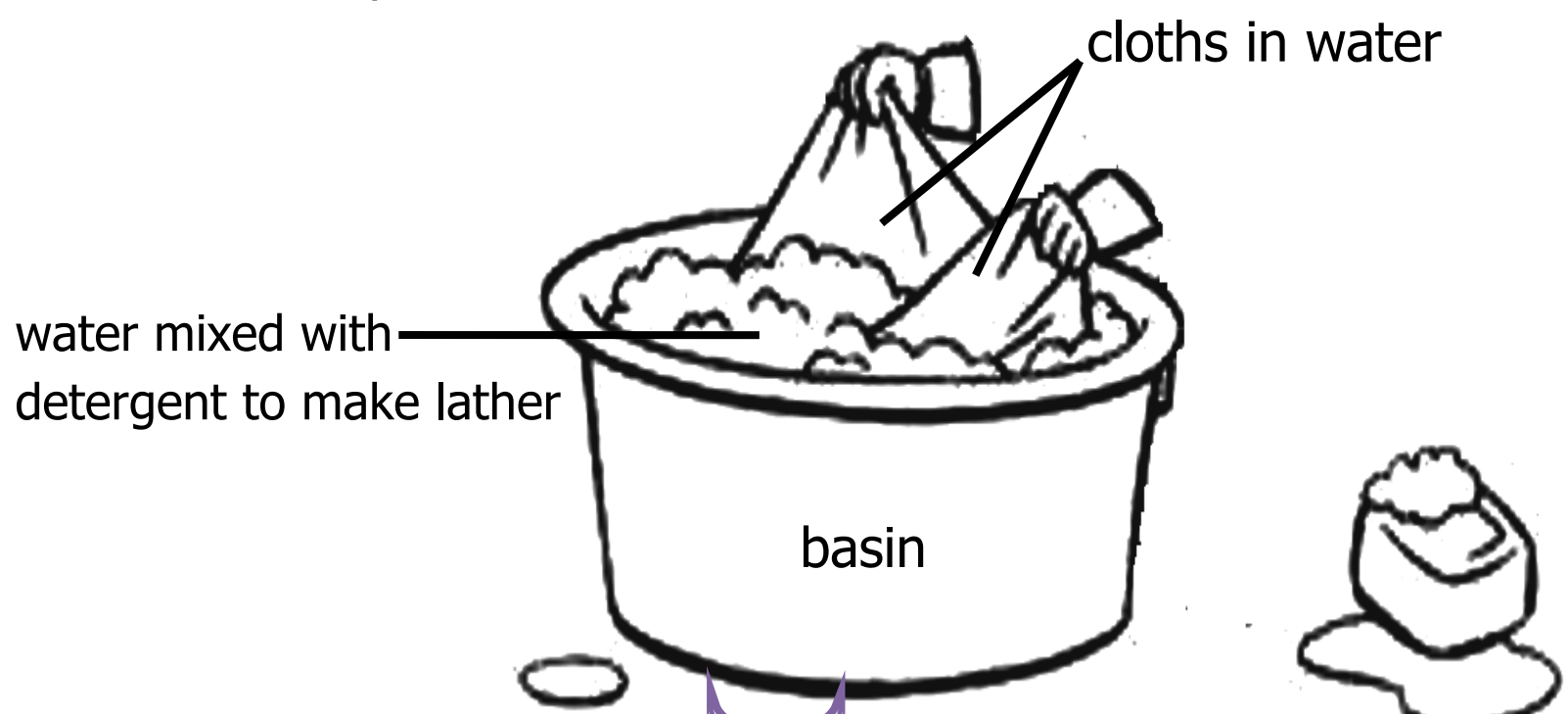
The diagram below is of a farm equipment. Use it to answer questions **26** and **27**.



26. Name the farm equipment above.
✓ **Strip cup.**
27. Which cattle disease is detected using the above farm equipment?
✓ **Mastitis.**
28. Give any **one** way in which bacteria help to improve the health of people.
✓ **Some bacteria are used in the making of vaccines.**
✓ **Some bacteria are used in the making of Vitamin B12.**
✓ **Some bacteria are used in the making of antibiotics.**
29. Name the protozoan disease that affects the reproductive system.
✓ **trichomoniasis**
30. Which method of harvesting trees is suitable for obtaining poles?
✓ **Coppicing.**
31. In which part of the digestive system is hydrochloric acid produced?
✓ **Stomach.** (*Reject: Stomach wall since it is not a part of the digestive system*)
32. State any **one** way in which echoes are important to sailors.
✓ **Echoes help sailors to dodge obstacles on their way.**
✓ **Echoes help sailors to determine the depth of water bodies.**
33. What type of energy enables fast flowing water to generate hydro electricity?
✓ **Kinetic energy.** (*Reject; electrical energy / mechanical energy.*)

34. Give any **one** way of controlling common diseases at home.
- ✓ **Observing personal hygiene.**
 - ✓ **Proper feeding / nutrition.**
 - ✓ **Drinking boiled water**
 - ✓ **Observing food hygiene.**
 - ✓ **Draining stagnant water.**
 - ✓ **Observing proper sanitation.**
35. Apart from filtering blood, state any one other function of the kidney in the body.
- ✓ **Regulates the amount of salts in the body.**
 - ✓ **Regulates the amount of water in the body.**
 - ✓ **Produces erythropoietin which helps in the production of red blood cells.**
 - ✓ **Helps in the formation of urine.**
36. Write down any **one** piece of information which is collected in a healthy survey.
- ✓ **Common sicknesses affecting people in the community.**
 - ✓ **Information on immunization.**
 - ✓ **Family planning services.**
 - ✓ **Information on food security.**
 - ✓ **Latrine coverage.**
 - ✓ **Population status.**
 - ✓ **Source of water.**
 - ✓ **Level of health education.**
 - ✓ **Sanitation information.**
37. Name the fungus used in the bakery industry.
- ✓ **Yeast.**

The diagram below shows one of the steps followed when cleaning clothes. Use it to answer questions **38** and **39**.



38. Name the step followed when cleaning clothes shown above.
✓ **Soaking.** (*Reject; Washing*)
39. State any **one** way in which the step named in (a) above is useful when cleaning clothes.
✓ **Helps to dissolve dirt in clothes.**
✓ **Softens dirt in clothes for easy washing.**
✓ **Removes stains from clothes.**
✓ **Makes washing easy.**
40. State any **one** factor that can prevent the vacuum flask from working normally.
✓ **Broken vacuum seal.**
✓ **Loose cork.**
✓ **Cracks on the double glass wall.**
✓ **Failure to fill the liquid upto the cork.**

SECTION B: 60 MARKS

Questions **41** to **55** carry four marks each.

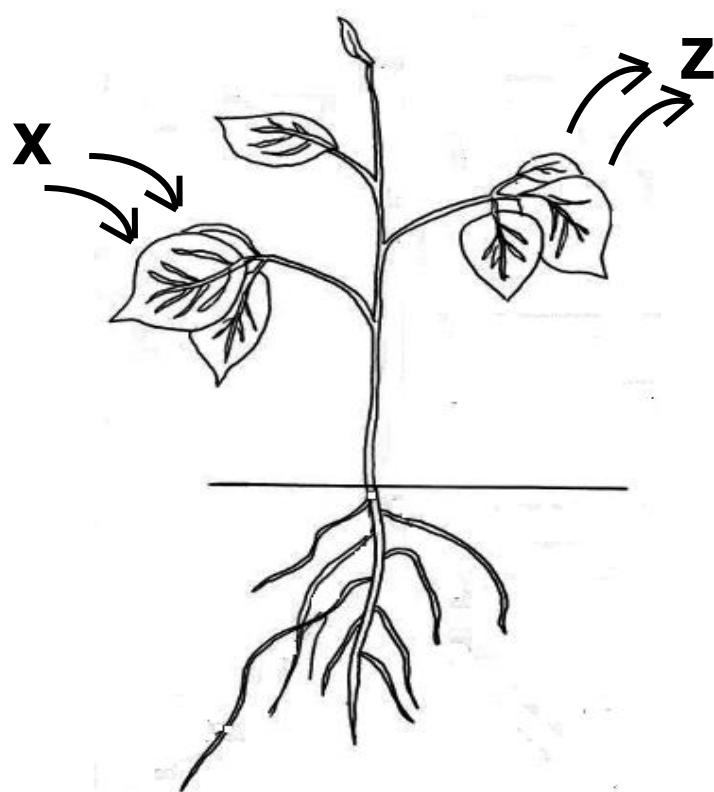
41. a) Mention any **two** examples of craft products
- | | |
|-----------------------|----------------------|
| ✓ fibre balls. | ✓ fibre hats |
| ✓ fibre dolls. | ✓ clay pots |
| ✓ ropes | ✓ clay plates |
| ✓ mats | ✓ clay stoves |
| ✓ baskets | |
- b) Give any **two** ways in which craft products are useful to people.
- ✓ **Mats are used as seats.**
 - ✓ **Crafts are sold for money.**
 - ✓ **Craft mats are used for wearing.**
 - ✓ **Baskets are used for carrying things.**
 - ✓ **Mats are used as beds.**
 - ✓ **Ropes are used for tying farm animals.**
 - ✓ **Dolls are used as playing materials.**
 - ✓ **Pots are used to keep water.**

42. In the table below, **Part A** shows parts of an electric circuit and **Part B** shows the functions of the parts.

Part A	Part B
Switch	Produces heat and light
Dry cell	Safeguards the circuit
Fuse	Produces electricity
Bulb	Breaks or completes the circuit

Write the correct function in the space provided below.

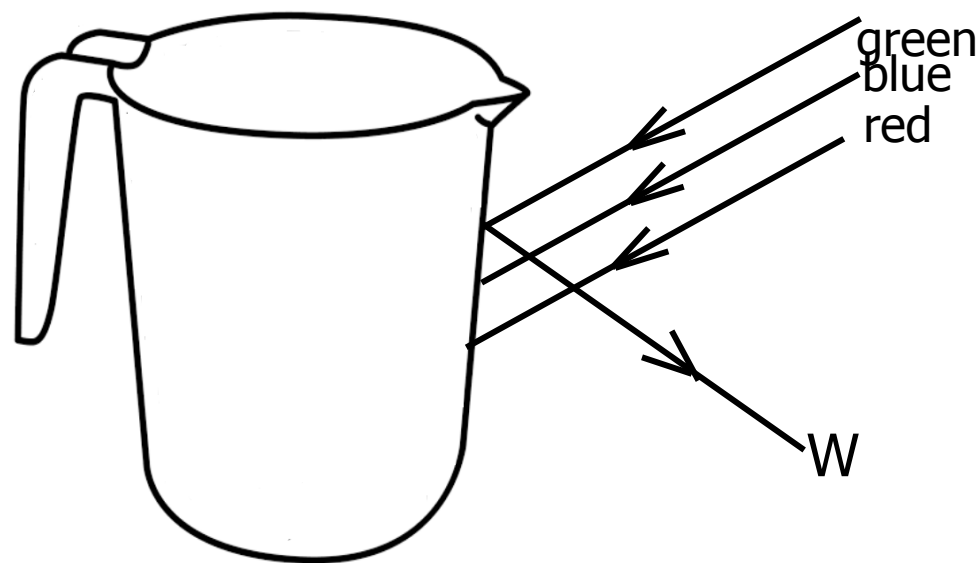
- i) Switch **Breaks or completes the circuit.**
 - ii) Dry cell **Produces electricity.**
 - iii) Fuse **Safeguards the circuit.**
 - iv) Bulb **Produces heat and light.**
43. The diagram below shows a process that takes place in plants. Study it and use it to answer the questions that follow.



- a) Identify the plant process shown in the diagram above.
✓ **Photosynthesis.**
- b) Name the gaseous substances marked **X** and **Z**.
 - i) **X** - **Carbon dioxide.** (*Reject: Carbondioxide*)
 - ii) **Z** - **Oxygen.**
- c) State any **one** condition necessary for the above plant process to take place.
 - ✓ **Presence of chlorophyll.**
 - ✓ **Presence of sunlight.**

44. a) State what happens to each of the following parts during breathing out.
1. Lungs - **Contract**
 2. Diaphragm - **Moves upwards and forms a dome shape.**
- b) Mention any **one** disorder of the respiratory system.
- ✓ **sneezing.** - **Nasal congestion**
 - ✓ **hiccups** - **Accumulation of mucus in the airsacs**
 - ✓ **choking** - **Cough.** (*Reject: chocking // hicups*)
- c) Give any **one** way of keeping the respiratory system in a healthy working condition.
- ✓ **Having regular body exercises.**
 - ✓ **Feeding on a balanced diet.**
 - ✓ **Going for regular medical checkups.**
 - ✓ **Avoid smoking cigarettes.**
 - ✓ **Keeping away from dusty places.**
45. a) Write down any **two** reasons why you would classify a spider under arachnids.
- ✓ **Has two main body divisions.**
 - ✓ **Has four pairs of jointed legs.**
 - ✓ **Breathes through lung book.**
- b) How is the reproduction of a spider different from that of a scorpion?
- ✓ **A spider lays eggs while a scorpion produces live young ones.**
- c) Apart from spiders and scorpions, name any **one** other example of arachnids.
- ✓ **Mite // tick.**
46. a) State any **two** ways in which crop pests affect tuber crops.
- ✓ **Reduce on crop yields.**
 - ✓ **Pests cause decay of root crops.**
 - ✓ **Pests damage the tubers.**
 - ✓ **Lead to stunted growth of tuber crops.**
 - ✓ **Farmers spend a lot on preventing tuber crop pests.**
- b) Why should a granary have rat guards on the stands?
- ✓ **To prevent rats from entering the granary.**
- c) Give any **one** mechanical method of controlling tuber crop pests.
- ✓ **Physical guarding.**
 - ✓ **Setting pest traps.**
 - ✓ **Fencing the garden.**
 - ✓ **Uprooting infected parts.**
 - ✓ **Hanging scare crows in the garden.**

47. The diagram below shows light rays of different colours striking a plastic jug. Study and use it to answer the questions that follow.



- a) Name the ray of light marked with letter **W**.
• **Reflected ray**
- b) Identify the colour of the jug.
• **Green**
- c) Give a reason for the response you have written in (b) above.
• **The jug absorbs all other colours and reflects only green**
- d) What name is given to the above colours on the jug
Primary colours
48. a) Write down any **one** activity done under each of the following elements of primary health care (PHC) in the community.
- Health education
- ✓ **Proper sanitation**
 - ✓ **Prevention and control of diseases in the community.**
 - ✓ **Importance of immunization.**
 - ✓ **Importance of proper nutrition.**
 - ✓ **Proper personal hygiene.**
 - ✓ **Child to child relationship.**
- Oral and dental health care.
- ✓ **Brushing teeth after meals.**
 - ✓ **Rinsing the mouth after meals.**
 - ✓ **Going for dental checkups.**

- b) State any **two** examples of suitable health lifestyles that an individual should practice.
- ✓ **Avoid smoking.**
 - ✓ **Doing physical exercise daily.**
 - ✓ **Avoid excessive use of alcohol.**
 - ✓ **Getting enough rest and sleep.**
 - ✓ **Avoid drug abuse.**
 - ✓ **Maintaining good body posture.**
 - ✓ **Proper nutrition.**
 - ✓ **Washing and ironing clothes and beddings.**
 - ✓ **Caring for other people with disabilities or health problems.**
 - ✓ **Visiting health workers in case of any health problems**
 - ✓ **Early reporting of problems such as disease outbreak.**

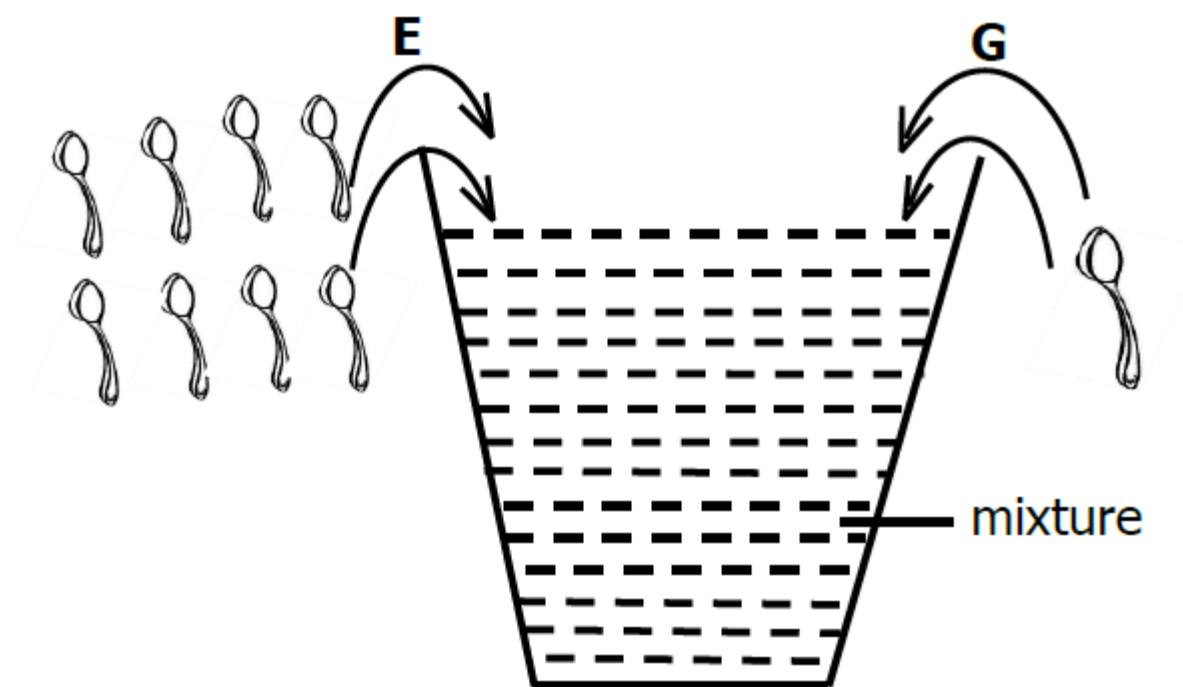
49. a) Give any **two** characteristics of exotic breeds of chicken.
- ✓ **Lay many eggs.**
 - ✓ **Big in size.**
 - ✓ **Mature very fast.**
 - ✓ **Have same colour shade.**
 - ✓ **Produce soft / tender meat**
 - ✓ **Produce more meat.**
 - ✓ **Do not incubate their eggs.**
 - ✓ **Less resistant to diseases.**
 - ✓ **Do not care for their young ones.**
 - ✓ **Need a lot of care.**
 - ✓ **Cannot withstand harsh / poor weather conditions.**
- b) State any **two** reasons why some farmers prefer keeping exotic breeds of chicken to local breeds.
- ✓ **Exotic breeds grow and mature faster than local ones.**
 - ✓ **Exotic breeds produce more meat than local ones.**
 - ✓ **Exotic breeds lay many eggs yet local breeds lay few eggs / Produce more eggs than local ones.**

(Reject points without comparisons)

50. a) Why should water be added in a biogas digester?
- ✓ **To speed up the rate of decomposition in the digester.**
- b) Mention any **two** organic materials used in the production of biogas.
- ✓ **cow dung**
 - ✓ **poultry droppings**
 - ✓ **animal urine.**
 - ✓ **banana peelings**
 - ✓ **potato and cassava peelings**

- d) State any **one** reason why the use of biogas for cooking is considered to be environmental friendly.
- ✓ **Biogas does not pollute the environment.**
 - ✓ **Biogas production reduces deforestation for wood fuel.**

51. The diagram below shows the substances used in the preparation of a certain mixture. Study and use it to answer the questions that follow.



- a) Name the substances marked **E** and **G**.
- i) **E** - **Sugar**
 - ii) **G** - **Salt.**
- b) State the importance of the substance marked **E** when preparing the mixture above.
- ✓ **It is a source of energy.**
 - ✓ **Enables the patient (dehydrated person) to replace the lost energy when drunk.**
- c) Which human health condition makes a patient to drink the above mixture?
- ✓ **Dehydration.**
52. a) Write down any **one** sign of HIV/AIDS.
- ✓ **Skin rash.**
 - ✓ **Chronic cough.**
 - ✓ **Blood stained sputum.**
 - ✓ **Fever and sweating at night.**
 - ✓ **Loss of body weight.**

- b) Give any **two** effects of HIV/AIDS to individual.
- ✓ **Weakens the immunity of a person.**
 - ✓ **Increases chances of getting other diseases.**
 - ✓ **Leads to stigmatization / rejection by other people.**
 - ✓ **Causes death to the victim.**
 - ✓ **Leads to depression and hopefulness.**
 - ✓ **Makes a person lose the job / income.**
 - ✓ **Causes worries to a person.**
- c) How best can a primary school pupil prevent him/herself from contracting HIV/AIDS?
- ✓ **Abstaining from sexual intercourse.**

53. a) State the importance of each of the following activities in agro-forestry.

Pricking out

- ✓ **Reduces competition for water and nutrients.**
- ✓ **Prevents easy spread of diseases among seedlings.**

Hardening off.

- ✓ **Enables seedlings to get used to the different weather conditions after transplanting.**

- b) Give any **two** factors to consider when choosing trees to grow in a woodlot.
- ✓ **Fast growing species.**
 - ✓ **Disease resistant species.**
 - ✓ **Multi-purpose trees.**

54. a) How is each of the following parts important on a human ear?

Ossicles

- ✓ **Amplify sound vibrations.**
- ✓ **Transmit sound vibrations from the eardrum to the cochlea.**

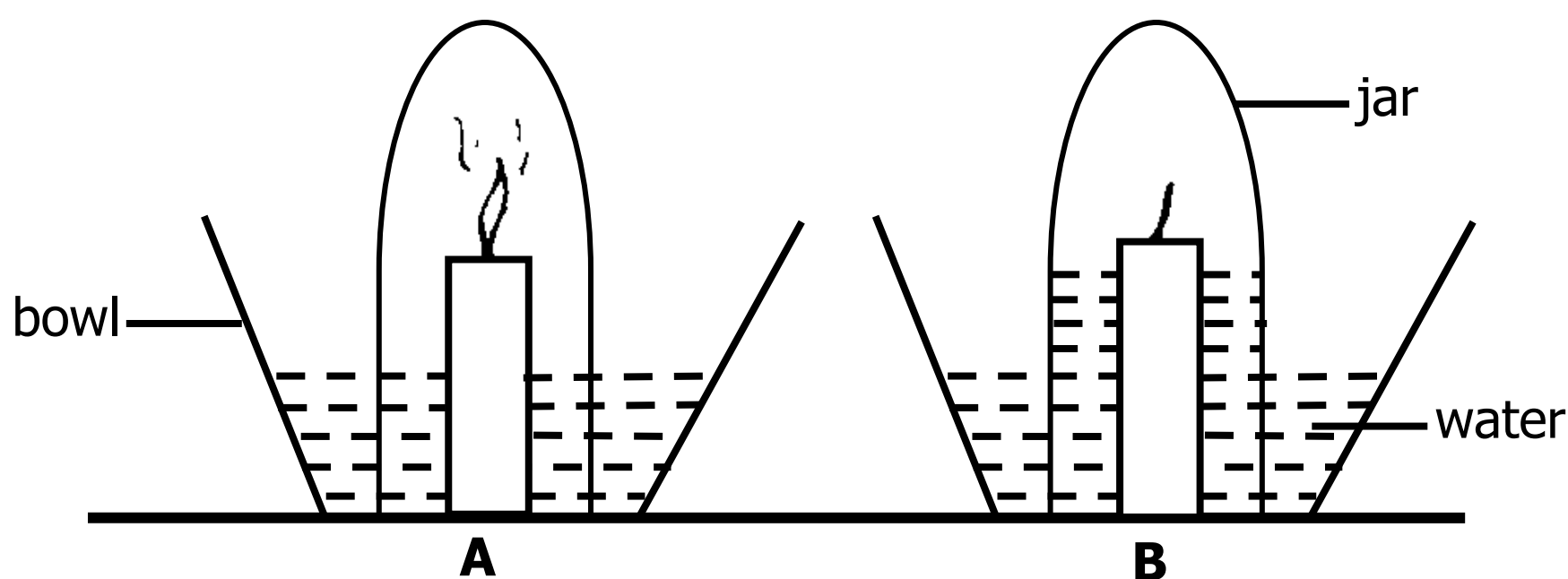
Pinna

- ✓ **Collects / traps sound waves from the surrounding.**

- b) Apart from hearing, in which other way is the human ear useful to a person?
- ✓ **For body balance.**

- c) State any **one** cause of sensory deafness to people.
- ✓ **Disease or injury of the auditory nerve.**
 - ✓ **Fracture to the skull.**
 - ✓ **Living in places with high pitched sound for long.**
 - ✓ **Old age.**

55. The diagram below shows a candle flame placed in a jar in a bowl containing water. Study and use it to answer the questions that follow.



- a) Which gas is found in the jar in diagram **A**?
- ✓ **Oxygen.**
- b) Why does the candle flame go off in the jar as shown in the diagram **B**?
- ✓ **Oxygen that supports burning is cut off.**
- (Reject: Oxygen is used up because oxygen is renewable hence cannot get exhausted / depleted / used up)*
- c) Give a reason why the level of water rises as shown in the diagram **B**.
- ✓ **To occupy the space left by cut off oxygen.**
- d) What does the above experiment show?
- ✓ **Oxygen supports burning.**

END.

Space for additions and corrections

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