



FLOURISH OF EXCELLENCE EXAMINATIONS BOARD



INTEGRATED SCIENCE UNIQUE SERIES - 3 OFFICIAL MARKING GUIDE

‘Don’t speak for success, let success speak for itself’

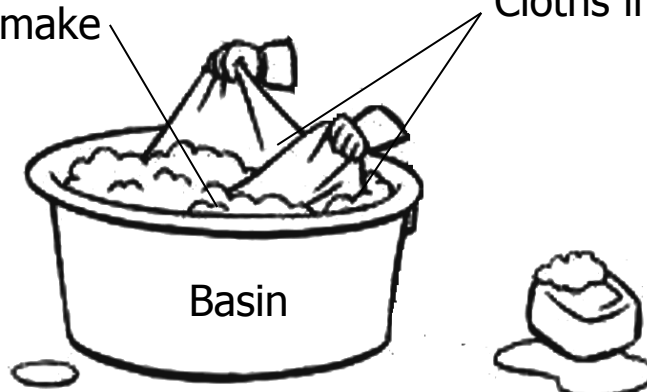
SECTION A (40 MARKS)

- 1 Name the part of a bean seed that supplies food to the growing embryo during germination.
✓ **Cotyledon**
- 2 Apart from vitamins mention any **one** other class of food that is directly absorbed into the bloodstream of the human body.
✓ **Mineral salts**
- 3 Give any **one** reason why pregnant mothers are advised to feed on food rich in proteins.
✓ **To repair worn out body tissues.**
✓ **To promote proper growth of the foetus in the womb.**
✓ **To replace worn out body cells.**
✓ **To make antibodies to in order to boost the immunity of the mother and unborn child.**

The diagram below shows the step taken when cleaning clothes at home. Use it to answer the questions **4** and **5**.

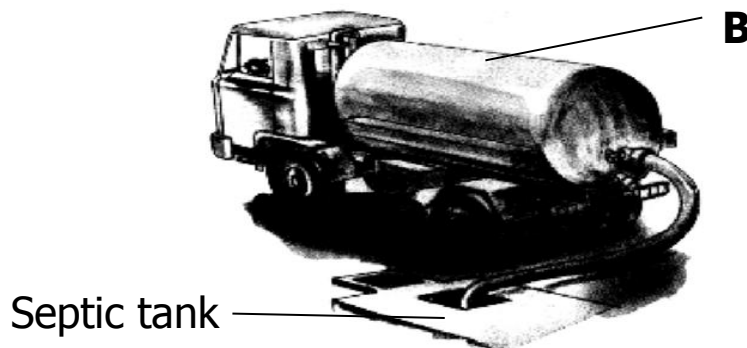
Water mixed with detergent to make lather

Cloths in water



- 4 Name the step followed when cleaning clothes shown above.
✓ **Soaking.** (Reject: Washing)
- 5 State any **one** way in which the step named in (4) 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.**
- 6 Name the sexually transmitted disease which leads to loss of hair on the head.
✓ **Syphilis** (Reject: Syphillis)

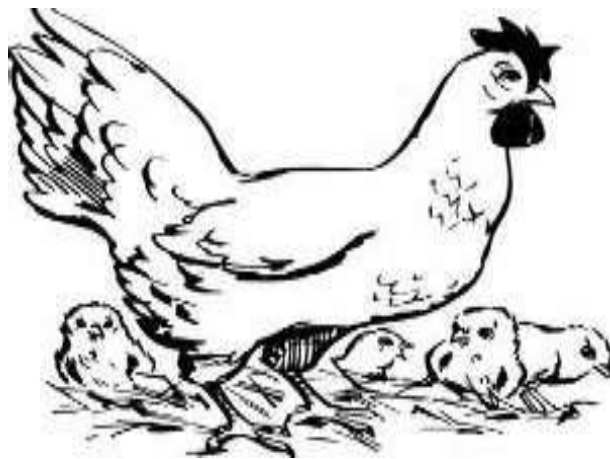
7. Name the type of eclipse where the moon comes in between the sun and the earth.
✓ **Solar eclipse**
8. State any one way in which way splints are useful to a causality with fractured legs.
✓ **Splints keep the broken bones in one position.**
✓ **Splints immobilize the broken bones.**
9. Mention any one factor which determines the strength of an induced magnet.
✓ **Nature of the material magnetized.**
✓ **Number of permanent magnet used.**
✓ **Strength of the magnet used.**
10. State a reason why people are advised to put out petrol fire using sand instead of water.
✓ **Sand cuts off oxygen supply to the fire while petrol floats on water and continues to burning.**
✓ **Sand cuts off oxygen supply to the fire while Petrol floats on water and spreads fire to other places**
The diagram below shows a vehicle commonly found in the community. Study and use it to answer questions **11** and **12**.



11. Name part marked **B** on the vehicle shown in the diagram above?
✓ **Cesspool emptier** (Reject: Vehicle / truck / tank)
12. How does the above vehicle help to promote water and sanitation?
✓ **Helps in proper disposal of sewage.**
✓ **Helps in emptying septic tanks.**
✓ **Helps in emptying latrines safely when full.**
✓ **Helps in transporting sewage safely to the treatment plants**

13. Mention any **one** activity carried out by school health club.
- ✓ **Conducting school health parades.**
 - ✓ **Monitoring food preparation at school.**
 - ✓ **Monitoring the health of children at school.**
 - ✓ **Maintaining school hand washing facilities.**
 - ✓ **Setting up school rules.**
 - ✓ **Organizing school health meetings.**
14. Give a reason why the screen of a television set when touched in order to be turned on always produce a cracking sound.
- ✓ **it is as a result of static electricity**
15. State **one** activity at home that requires the use of filtration method.
- ✓ **When separating water from soil.**
 - ✓ **When separating fruit juice from seeds.**
 - ✓ **When separating water from soil.**
 - ✓ **When separating tea from tea leaves.**
 - ✓ **When preparing local salt from plant ash.**
 - ✓ **When separating tea from tea leaves.**
16. Name the crop practice which ensures correct crop population in the garden.
- ✓ **Gap filling** (Reject: Thinning)
17. A piece of paper and a chalk were dropped from the same height. A chalk reached on the ground first. Why did the chalk reach the ground first before the piece of paper?
- ✓ **A chalk has less air resistance than a paper**
(Reject: A chalk is denser // Due to force of gravity)
18. Name the cattle disease which shows the signs like nasal discharge, loss of body weight and loss of appetite.
- ✓ **Pneumonia.**
19. How are blood capillaries adapted to their function of allowing the exchange of materials in the body?
- ✓ **Blood capillaries have thin walls.**
 - ✓ **Blood capillaries have moist surfaces**
20. How is the diaphragm of the lens camera similar to the iris of the human eye in the way they function?
- ✓ **Regulate the amount of light that enters**

21. In which way is the function of solar panels similar to that of chlorophyll in leaves.
✓ **The solar panel absorbs sunlight.**
22. Apart from white yams, mention **one** other example of root tubers.
✓ **Carrots / Cassava / sweet potatoes / turnips / beet roots / swede / dahlia**
23. Give a reason why people are advised to identify where the fang marks are on the victim's body in case of snake bites.
✓ **To be given the right antivenin**
The diagram below shows the type of brooding in a poultry coop. study and use it to ANSWER questions 24 and 25.



24. Give any **one** reason why most farmers prefer the above type of brooding.
✓ **It is cheap**
✓ **It does not need a lot of care and attention.**
✓ **A farmer gets time to do other activities.**
✓ **Toe pecking is reduced.**
25. Apart from warmth, name **one** other thing the above hen provides to her chicks.
✓ **Food // Security**
26. Why is it not advisable to keep potted plants in a room where people live?
✓ **Potted plants compete with people for oxygen**
27. Name the part of the digestive system which helps to secrete hydrochloric acid.
✓ **The stomach // stomach**

28. How does yeast reproduce?
✓ **By cell budding // by budding of cells.**
(Reject: By budding)
29. State the importance of wearing a sweater?
✓ **A sweater keeps the body warm.**
✓ **A sweater prevents heat loss from the body**
Reject:
❖ A sweater provides warmth to the body.
Note that:
➤ A sweater does not provide warmth but prevents heat from escaping from the body. So it keeps the body warm.
➤ Secondly provision of warmth is only done by the source.
30. Why are egrets commonly seen on cattle?
✓ **Egrets help to eat up the insects that fall on cattle.**
31. Apart from synovial fluid, which other substance helps to reduce friction between bones at a joint?
✓ **Cartilage // Gristle**
32. How do hookworms affect the circulatory system?
✓ **Hookworms suck blood from the body and lead to anaemia**
(Reject; they feed on blood)
33. Apart from removing dirt, why should the udder and teats of a cow be washed with warm water before milking?
✓ **To stimulate milk let down.**
34. Name the insect borne disease that causes swelling of the leg?
✓ **Elephantiasis.**
(Reject: culex mosquito)
35. Mention any **one** nonliving component of soil.
✓ **Rock particles**
✓ **Mineral salts**
✓ **Water**
✓ **Air**
✓ **Humus**

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 major organs of the respiratory system?
- ✓ **Lungs**
38. State any **one** reason why clay soil is used for making ceramics.
- ✓ **It has fine smooth particles.**
 - ✓ **It has sticky particles.**
39. Why is a hoe barrow regarded as a simple machine?
- ✓ **A hoe has few parts and simplifies work.**
 - ✓ **A hoe has few parts and easy to operate.**
 - ✓ **A hoe has few parts and does not need any training to operate.**
- Reject:
- ❖ A hoe simplifies work.
 - ❖ A hoe makes work easier
- Advice to teachers**
- ✓ You need to make learners know the difference between why a hoe is known as a machine and why a hoe is known as a simple machine.
40. Apart from anal fin, state **one** other part of a fish which works like semicircular canal of the human ear.
- ✓ **Dorsal fin.**
- Note the following.
- ✚ **Dorsal fin** and **anal fin** works like the brain in man.
 - ✚ **Tail fin** and **caudal fin** works like steering wheel of a car.
 - ✚ **Nostril works** like feelers of an insects, nose of humans and tentacles of a snail.
 - ✚ **Gill cover** works like the ribcage.

SECTION B: 60 MARKS

Question **41** to **55** carries four marks each

41. Epidu wanted to make alcohol locally at home. He had the following materials?

Ripe mango, clean jug, clean water and sieve

- a) Name the method of making alcohol the Epidu would use.
✓ **Fermentation.** (Reject: Fermenting)
- b) Why did Epidu include ripe mango on the list?
✓ **To make the content taste sugary.**
✓ **To make the content sugary.**
- c) Explain how Epidu will make alcohol locally using the materials shown on the above list? **(02 marks)**
✓ **Make juice from ripe mango and add some little water and sugar to it.**
✓ **Sieve the juice and store it in a clean jug.**
✓ **Check on the content after three days.**
✓ **Bubbles of carbon dioxide will be seen in a clean jug and the content in the jug taste sugary.**

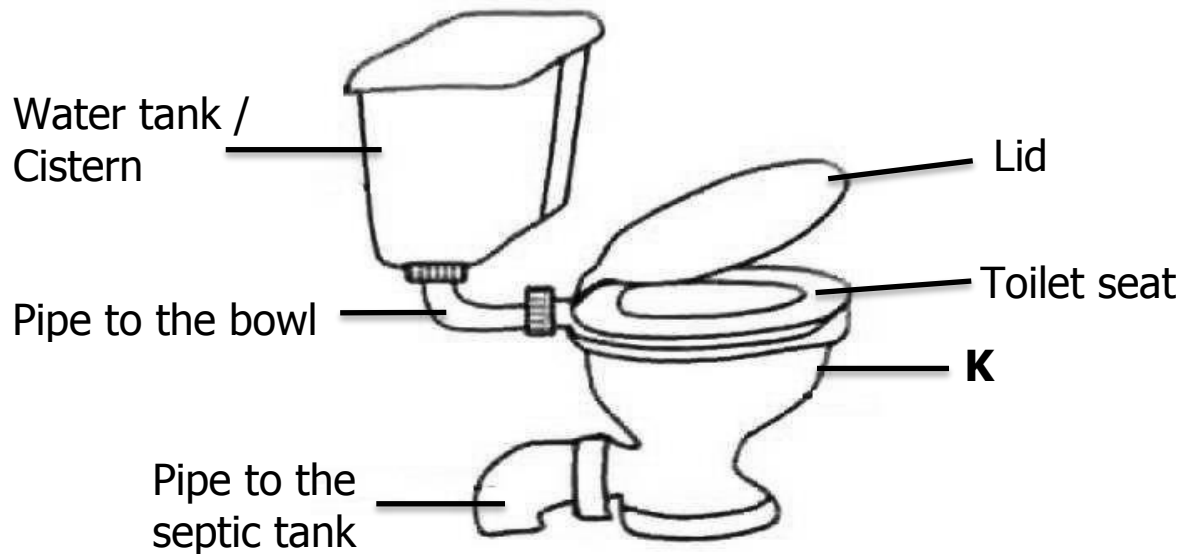
Note that

- Bubbles from the cup show carbon dioxide produced during fermentation
- Sugary taste shows the taste of alcohol produced from ripe mango.

42. The table below shows excretory organs and the waste products. Use it to complete the space below.

Excretory organ	Waste product
Kidney	Urine
Lungs	Carbon dioxide // water vapour
Liver	Bile pigment
Human skin	Sweat

43. The diagram below shows **a flush toilet**. Study carefully and use it to answer the questions that follow.



- (a) Name the parts labeled **K**.
- ✓ **Toilet bowl**
- (b) State the importance of some water which remains in part marked **K** after flushing.
- ✓ **Prevents smelly air from coming out from the septic tank.**
 - ✓ **Prevents the backflow of sewage in the toilet room**
 - ✓ **Prevents houseflies from reaching faeces in the septic tank.**
 - ✓ **Keeps the toilet bowl hygienically clean.**
- (c) Give a reason why the above structure is referred to as a flush toilet.
- ✓ **Water is used to wash away faeces and urine from the toilet.**
- (d) Give any **one** way of maintaining the above toilet in a good working condition.
- ✓ **Cleaning it regularly**
 - ✓ **Flush the toilet with water after use**
 - ✓ **Scrub the floor with a toilet brush**
 - ✓ **Do not squat or stand on the bowl**
 - ✓ **Avoid using and throwing rough materials in the bowl**

44. You are provide with the following materials.

Glass tubes, Plasticine, Plastic bottle, cello tape, Rubber sheet and 2 balloons and a straw.

Describe the steps you would follow to make a model of the human respiratory system. **(04 marks)**

STEP 1

- ✓ **Cut the bottom of the glass tube and fixed the two balloons onto the glass tube**
- ✓ **Insert the balloons with Y-shaped straw onto the glass tube.**
- ✓ **Cover the bottom of the glass tube with rubber sheet using cello tape.**
- ✓ **Seal the top of the glass tube with Plasticine.**

STEP 2

- ✓ **Cut the bottom of the glass tube to make one end open.**
- ✓ **Insert the two straws having inflated balloons onto either side into the glass tube through the bottle open end.**
- ✓ **Cover the bottom of the glass tube with rubber sheet using cello tape.**
- ✓ **Seal the top of the glass tube with Plasticine.**

45. (a) How is convulsion different from fever?

- ✓ **Convulsion is the rapid uncontrolled jerking/shaking of the body while fever is condition in which the body temperature rises beyond the normal.**

(b) Why is it not advisable to give convulsing person food to eat?

- ✓ **Food may cause choking and death.**
- ✓ **Food leads to choking and causes death.**

(c) Give a reason why a hard object should be put in the mouth of a convulsing victim

- ✓ **To prevent the victim from biting the tongue.**

(d) How is tepid sponging useful to a victim with fever?

- ✓ **Tepid sponging cools the body temperature of a victim.**

46. You are provided with the following materials to separate a mixture of water and small rock particles.

Clean cloth, string and clean container.

- (a) Name the method of separating mixtures you would use in the above process.

✓ **Filtration method**

- (b) State how the string is important in the above process.

✓ **For tying the clean cloth onto the clean container.**

- (d) Explain the steps you would follow to obtain clean water in the above process. **(02 marks)**

✓ **Tie a clean cloth on a clean container using a string.**

✓ **Pour water and small rock particles into a clean container.**

✓ **The clean cloth separates water from the small rock particles.**

✓ **Collect clean water in a clean container.**

47. a) State the function of the following parts found in a bow harp:

- i) Sound hole.

✓ **Allows out sound when plucking the strings.**

- ii) Resonator.

✓ **Amplifies sound produced by the string.**

Note that.

✓ Resonator is another word to mean sound box.

✓ The pegs are used to tune the strings.

- b) State the reason why drums are usually put in sunshine before playing.

✓ **To increase their pitch.**

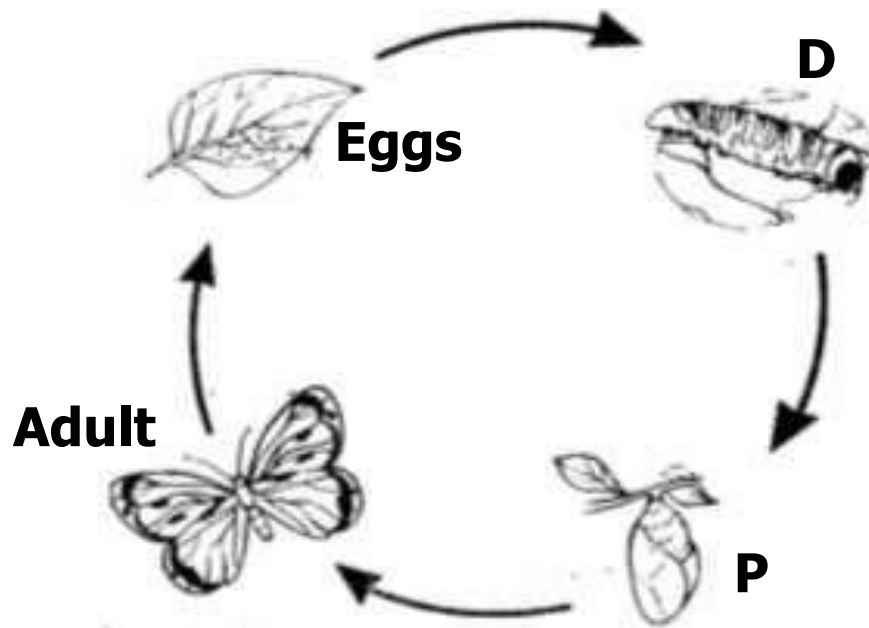
✓ **To tighten the skin in order to increase tension.**

- c) Etesot poured water into three different bottles and replaced with milk, after blowing air in them, he noticed that the pitch of sound did not change. Give a reason why the pitch of sound was the same

✓ **Both water and milk are liquids.**

Note that: **Bottles produce sound by vibration of air molecules when blown inside.**

48. The diagram below shows the type of life cycle. Study and use it to answer the questions that follow.



- a) What type of life cycle is shown in the diagram above?
✓ **Complete life cycle** (Reject: Complete metamorphosis)
Note that: The question is asking for life cycle not metamorphosis
- b) Name the stage marked **P**.
✓ **Pupa stage**
- c) How is the stage marked **D** destructive to a crop farmer?
✓ **Stage marked D eat up leaves of crops.**
- d) Why are the above eggs laid under the leaves?
✓ **To protect them from direct sunshine.**
✓ **To protect them from predators.**

Reject: To enable caterpillars get food after being hatched.

Advice to teachers

- ❖ You need to make the learners know the reason
Why Butterflies lay eggs under plant leaves and reason why
butterflies lay eggs on leaves.

49. You are provided with the following materials.

Potatoes, banana leaves, water, knife, saucepan and banana stalks. After peeling the potatoes and washing them. Write four other steps you will follow to prepare sweet potatoes at home. **(04 marks)**

PROCEDURES

- i. Get clean saucepan and place pieces of banana stalk then cover the stalks with a banana leaf and put in water.**
- ii. Put the potatoes and cover with other banana leaves**
- iii. Put on fire and cook for forty five minutes.**
- iv. After forty minutes, remove the fire and cook the potatoes for another fifteen minutes until water dries out.**

50. a) Give the role of each of the following during digestion.

(i) Saliva.

- ✓ **Lubricates food for easy swallowing**
- ✓ **Softens and moistens food to prevent constipation**
- ✓ **Cools food in case it is hot**
- ✓ **Contains ptyalin that acts on cooked starch**

(ii) Tongue.

- ✓ **Rolls food into a bolus for easy swallowing**
- ✓ **Pushes food to the gullet for swallowing**
- ✓ **Turns food for easy chewing**
- ✓ **Mixes food with saliva**

(b) State any two characteristics of enzymes.

- ✓ **Form same end products -Specific in nature**
- ✓ **Proteins in nature**
- ✓ **Work best under optimum temperature**
- ✓ **Work in small amounts**

51. a) Give any **two** characteristics of exotic breeds of chicken. #

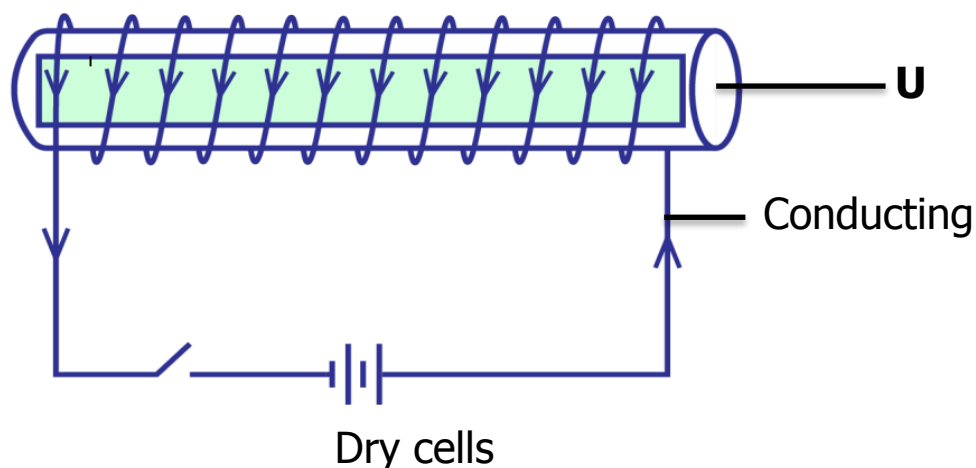
- ✓ **They lay many eggs.**
- ✓ **They are big in size.**
- ✓ **They mature very fast.**
- ✓ **They have same colour shade.**
- ✓ **They produce soft / tender meat**
- ✓ **They produce more meat.**
- ✓ **They do not incubate their eggs.**
- ✓ **They are less resistant to diseases.**
- ✓ **They do not care for their young ones.**
- ✓ **They need a lot of care.**
- ✓ **They 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)

52. The diagram below shows a method of marking temporary magnets. Study and use it to answer questions that follow



- a) Why is the above method referred to as electrical method?
- ✓ **It uses electricity.**
- b) State what happens to part **U** when the circuit is complete?
- ✓ **Part U became magnetized.**

- c) Explain how turns affects the strength of part **U**. **(02 marks)**
- ✓ **When the turns are more on part U, part U becomes strong and when turns are less on part U, part U becomes weaker.**
 - ✓ **The more turns on part U, the stronger part U becomes, and the less turns on part U, the weaker part U becomes.**

53. a) Why should water be added in a biogas digester?

- ✓ **To speed up the rate of decomposition in the digester.**

b) Mention any **one** organic materials used in the production of biogas.

- ✓ **Cow dung** ✓ **Animal urine.** ✓ **Poultry droppings**
- ✓ **Banana peelings** ✓ **Potato and cassava peelings**

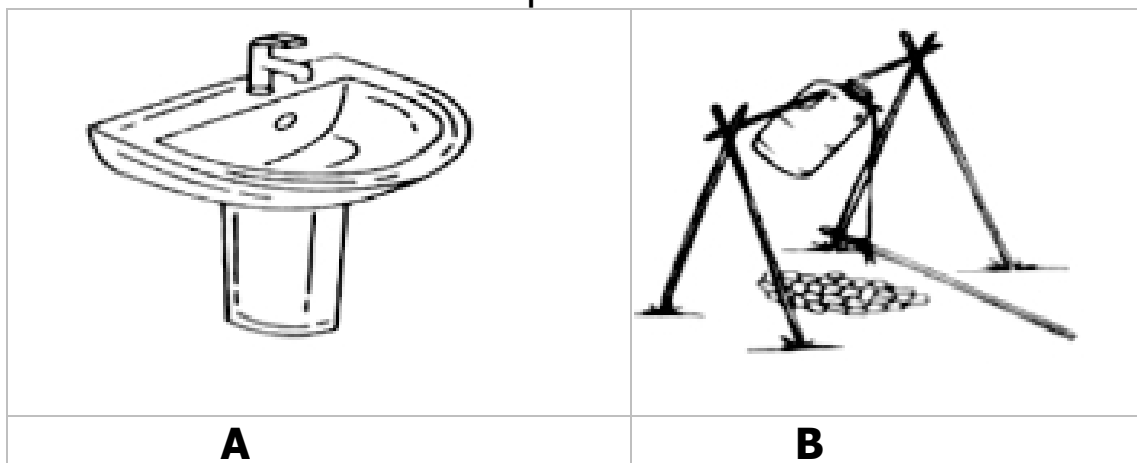
c) State any **one** reason why the use of biogas for cooking is considered to be environmental friendly.

- ✓ **Biogas does not pollute the environment.**
- ✓ **Biogas production reduces deforestation for wood fuel.**

d) How does production of biogas help to promote sanitation in an area?

- ✓ **Materials that would litter the environment are used in the production of biogas.**

54. The illustrations below shows hand washing facilities found in a home. Use them to answer questions that follow.



a) Name the hand washing facility marked **A**.

- ✓ **Sink** (Reject: Tap / Tippy tap)

b) Why is the facility marked **B** operated using the foot?

- ✓ **It does not allow easy spread of germs.**
- ✓ **It does not allow contamination of hands with germs.**

c) Mention any **one** disease that we can control from spreading using the above facilities.

- ✓ **Covid 19** ✓ **Cholera** ✓ **Typhoid**
- ✓ **Diarrhoea** ✓ **Polio**

d) State any **one** reason why the equipment **B** is recommended for use instead of hand operated taps?

✓ **Equipment B does not allow contamination of hands with germs unlike a hand operated taps.**

55. The list below food stuffs that belong to different classes of food. Use it to answer the questions that follow. The steps followed when making salt locally have

Orange, Honey, Iodised salt, cassava

(a) In which class of food does iodised salt belong?

✓ **Mineral salts**

(b) Name any **one** class of food which is not represented in the (a) above list.

✓ **Proteins**

✓ **Roughages**

(c) Identify any **one** foodstuff you would advise Mr. Paul who is a brick maker to eat.

✓ **Honey Cassava**

(Reject other foodstuffs which are rich in carbohydrates because they are not indicated on the list)

(d) How are oranges useful to human health?

✓ **Source of Vitamin C which prevents scurvy.**

✓ **They keep the body healthy.**

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