



SUREKEY EXAMINATIONS BOARD

PRE-PLE UNIQUE SERIES

2022

INTEGRATED SCIENCE MARKING GUIDE

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

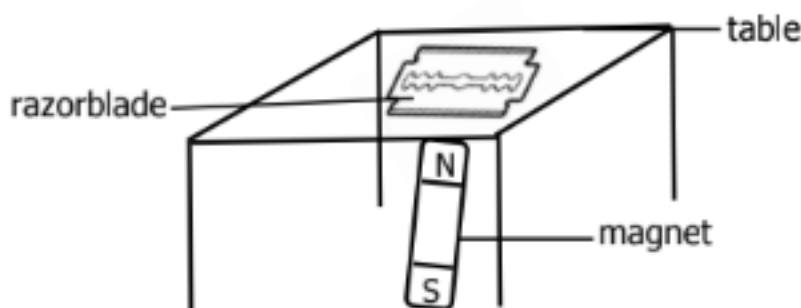
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SECTION A: 40 MARKS

Questions **1** to **40** carry one mark each

1. Name the body organ that makes vitamin D.
✓ **The skin.**
2. What form of mechanical energy is possessed by water boiling in a saucepan put on a burning charcoal stove?
✓ **Kinetic energy.** (Reject: Heat energy)
3. Give any **one** way in which nitrogen fixing bacteria benefit from root nodules.
✓ **They get shelter.**
✓ **They get food.**
4. In which way does gonorrhea increase the chances of contracting HIV/AIDS to an individual?
✓ **It causes sores/wounds on sexual organs through which HIV passes.**

The diagram below shows a property of magnets. Study and use it to answer questions **5** and **6**.



5. What property of magnets is shown in the diagram above?
✓ **Magnetism can pass through non magnetic materials.**
6. Give the importance of the above property of magnets to people.
✓ **Helps to separate the mixture of magnetic substances and non magnetic substances.**
(Reject: It helps to separate mixtures)
7. Which disease in goats is controlled by carrying out hoof trimming?
✓ **Foot rot.**

8. State any **one** way in which regular taking of marijuana affects the health of an individual.
- ✓ **Causes damage of the brain.**
 - ✓ **Causes lung cancer and emphysema.**
 - ✓ **Causes stains on the teeth.**
 - ✓ **Leads to reduced life expectancy.**
 - ✓ **Weakens the immunity.**
 - ✓ **May lead to coronary heart disease.**
 - ✓ **Worsens the conditions of a person suffering from Tuberculosis, Pneumonia and Asthma.**
9. How is a frog able to live comfortably both in water and on land?
- ✓ **A frog breathes through its moist skin when in water and through its lungs when on land.**
 - ✓ **A frog has webbed feet for paddling in water and leaping on land.**
10. Name the physical process that enables the toilet urinal cakes to produce pleasant smell when put in the latrine.
- ✓ **Sublimation.** (Reject: convection, evaporation, diffusion)
11. In which **one** way are the toothpicks important in the promotion of oral and dental health care?
- ✓ **Toothpicks are used to remove food remains between teeth.** (Reject: Toothpicks are used to clean teeth)
12. Which chemical process involves changing sugar in juice into alcohol?
- ✓ **Fermentation.**
13. Name the sheet of muscles that separates the abdominal cavity from the chest cavity.
- ✓ **Diaphragm.** (Reject: Intercostal muscles)
14. Why is the kink in a clinical thermometer bent?
- ✓ **In order to prevent the back flow of mercury when taking temperature reading (when measuring body temperature)**
15. Give any **one** danger of silting to aquatic animals.
- ✓ **Kills aquatic animals.**
 - ✓ **Exposes aquatic animals to their predators.**
 - ✓ **Cuts off oxygen supply to the aquatic animals.**

16. State any **one** way of controlling diarrhoeal diseases in the community.
- ✓ **Proper disposal of human wastes.**
 - ✓ **Proper disposal of rubbish.**
 - ✓ **Spraying insecticides to kill houseflies and cockroaches.**
 - ✓ **Regular cleaning of toilets / latrines and urinals.**
 - ✓ **Encouraging people to drink clean boiled water.**
 - ✓ **Ensuring food hygiene.**
 - ✓ **Proper disposal of animal wastes.**
 - ✓ **Addition of recommended chemicals in water for drinking.**
 - ✓ **Early reporting of cholera outbreaks in an area to the health sector.**
17. Why should a heat source be put in a brooder when caring for chicks?
- ✓ **To provide warmth to the chicks.**
 - ✓ **To prevent chicks from dying due to coldness.**
 - ✓ **To reduce cases of pneumonia outbreak among chicks.**
18. Which part of a mushroom has the same function as the anthers of a flower?
- ✓ **Gills.** (Reject: Cap)
19. State any **one** reason why cinema halls are covered with soft porous materials.
- ✓ **To reduce echoes in the cinema halls. / To absorb sound waves so as to reduce echoes.**
20. Give **one** way in which houseflies affect the sense of seeing in human beings.
- ✓ **Houseflies spread bacteria that cause trachoma to the eyes. / Houseflies spread trachoma to the eyes.**
 - ✓ **Houseflies spread chlamydia trachomatis that cause trachoma.** (Reject: Houseflies cause blindness to the eyes)
21. Give any **one** vitamin deficiency disease in humans.
- ✓ **Pellagra // Rickets // Scurvy // Night blindness // Beriberi.** (Reject: haemophilia and sterility because they are disorders not diseases)

22. State any **one** way in which propolis is useful to honey bees.
- ✓ **For repairing damaged parts in the hive.**
 - ✓ **For smoothing the interior of the hive.**
 - ✓ **For waterproofing the brood cells.**
- (Reject: For eating / used as food / for smoothening the hive)
23. State any **one** characteristic of a Ventilated Improved Pit latrine (VIP) latrine.
- ✓ **A VIP latrine has a vent pipe.**
 - ✓ **A VIP latrine has a fly screen.**
 - ✓ **A VIP latrine has no lid to the hole / pit.**
 - ✓ **A VIP latrine has spiral shaped walls.**
- NB:** Guide learners on the importance of the above features on a VIP latrine.

The diagram below shows a compound leaf. Study and use it to answer the questions **24** and **25**.



24. Identify the compound leaf shown in the diagram above.
- ✓ **Compound trifoliate leaf.**
25. Write down any **one** plant that has the compound leaf shown in the diagram above.
- | | |
|---------------------------|------------------------|
| ✓ Bean plants. | ✓ Pea plants. |
| ✓ Soya bean plant. | ✓ Simsim plant. |
26. State the importance of rennin in the stomach of babies.
- ✓ **Rennin coagulates milk proteins in the stomach.**
 - ✓ **Rennin clots the proteins in milk to separate it from fats.**
27. Name the vaccine given to adolescent girls to protect them against tetanus during menstruation period.
- ✓ **Tetanus Toxioid Vaccine // T.T Vaccine.**
- (Reject: HPV Vaccine)

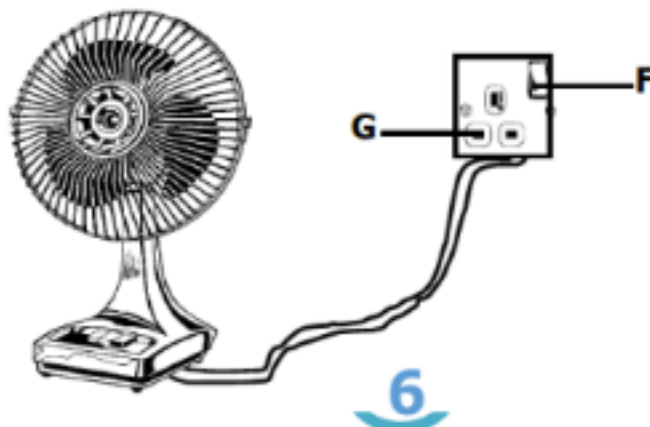
28. Why is a wheelbarrow regarded as a simple machine?
- ✓ **Has few parts and simplifies work.**
 - ✓ **Has few parts and easy to operate.**
 - ✓ **Has few parts and does not need any training to operate.**
- (Reject: A wheelbarrow simplifies work / makes work easier)
29. In which way does the production of biogas help to promote sanitation in an area?
- ✓ **Materials that would litter the area (make it dirty) are used to make biogas.**
30. Which important activity is carried out by the cortex in the kidney?
- ✓ **Filtration of blood.**
 - ✓ **Purification of blood.**
- (Reject: filtration / excretion)

The diagram below shows shapes of types of cattle. Use it to answer questions **31** and **32**.



31. What type of cattle has the shape marked with letter **K**?
- ✓ **Beef cattle.**
32. Name any **one** breed of cattle that has the shape marked with letter **J**.
- ✓ **Friesian / Brown Swiss / Jersey / Guernsey / Ayrshire.**
33. How do crop farmers reduce the rate of transpiration when planting banana suckers?
- ✓ **By cutting off leaves from banana suckers.**

The diagram below shows an electric device. Use it to answer questions **34** and **35**.



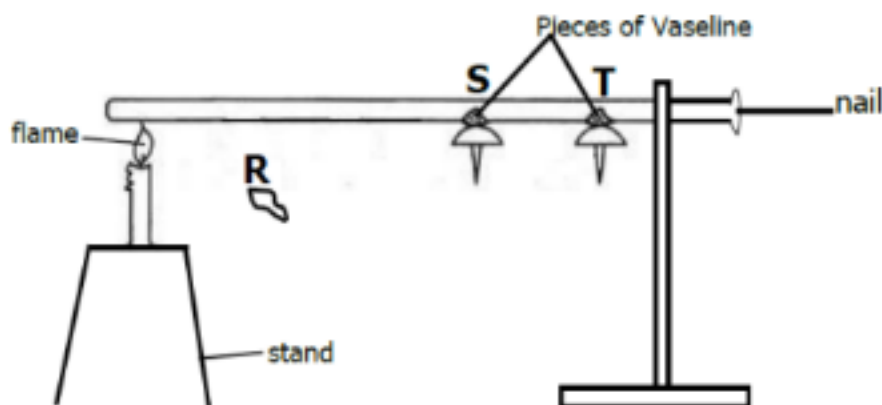
34. Name the part marked **G**.
✓ **Pin plug / plug**
35. What energy change takes place in the electronic device above when part **F** is turned on?
✓ **Electrical energy to mechanical energy.**
36. State any **one** way of controlling snuffles in rabbits.
✓ **Keep the hutch clean and dry daily.**
✓ **Feed rabbits well with plenty of vegetables.**
✓ **Avoid overcrowding rabbits in one hutch.**
✓ **Kill the affected rabbits.**
✓ **Regular vaccination of rabbits.**
37. Name the alloy used to fill holes in the tooth.
✓ **Dentist amalgam.**
38. What property of air supports the weight of car tyres on the ground?
✓ **Air can be compressed.**
(Reject the following; - Air exerts pressure.
- Air occupies space.
- Air has weight.)
NB: Help learners on some important aspects of air as a concept extensively)
39. What is the importance of sugar when preparing Oral Rehydration Solution (ORS)?
✓ **Sugar is a source of energy to a dehydrated patient / sugar provides the lost energy to a dehydrated patient.**
✓ **Sugar enables a dehydrated patient to regain the lost energy.**
(Reject: - Sugar acts as a solute.
- Sugar makes the solution sweeter.
- Sugar provides energy to ORS.)
40. In which way is the function of root hairs different from that of a root cap on a root system?
✓ **Root hairs absorb water and mineral salts from the soil for the plant while a root cap protects the tip of the growing root from mechanical damage.**

SECTION B: 60 MARKS

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

41. a) State the importance of each of the following components in the water cycle.
- (i) the sun - **Sun heat causes evaporation in water bodies / sun heat causes evapotranspiration.**
(Reject: the sun heats the water body)
 - (ii) plants – **Plants add water vapour to the atmosphere through transpiration.**
- b) Mention any **one** physical process involved in a water cycle.
✓ **Evaporation / Condensation / Transpiration.**
- c) Give any **one** disadvantage of the element of weather formed from water cycle to the environment.
- ✓ **Causes floods.**
 - ✓ **Leads to soil erosion.**
 - ✓ **Causes delay in transport.**
 - ✓ **Spoils crops.**
 - ✓ **Causes very cold temperature**
 - ✓ **Makes murrum roads muddy.**
 - ✓ **May cause hailstorms which destroy crops.**
 - ✓ **May result into lightning which kills people and other animals.**
42. a) Write down any **two** causes of soil erosion in hilly areas.
- ✓ **Overgrazing / Overstocking / Over cultivation /**
 - ✓ **Bush burning / Deforestation / Ploughing downhill.**
- b) How does terracing help to control soil erosion in hilly areas?
- ✓ **Terraces reduce the speed of flowing water.**
 - ✓ **Terraces trap soil flowing with water.**
- (Reject: Terracing / It reduces the speed of flowing water)
- c) Apart from terracing, state any **one** other way of controlling soil erosion in hilly areas.
- ✓ **Contour ploughing / Strip cropping / Inter cropping**
 - ✓ **Bunding / Planting trees / Cover cropping.**

43. The diagram below shows an experiment carried out about heat transfer. Study and use it to answer the questions that follow.



- a) Which method of heat transfer is demonstrated using the above experiment?
✓ **Conduction.**
- b) Why does the piece of Vaseline marked **R** fall first as shown in the experiment above?
✓ **It is in contact with the source of heat thus receives heat first. / It is nearest to the source of heat thus receives heat first.**
- c) What is the importance of using pieces of Vaseline when carrying out the above experiment?
✓ **Pieces of Vaseline show conductivity of heat when they melt.**
✓ **Pieces of Vaseline show how heat is travelling through the nail.**
- d) State any **one** effect of heat on the pieces of Vaseline used in the experiment above.
✓ **Heat makes pieces of Vaseline to melt.**
✓ **Heat reduces the volume of the pieces of Vaseline.**
✓ **Heat increases the density of pieces of Vaseline.**
✓ **Heat increases the temperature of the pieces of the Vaseline.**
✓ **Heat changes the physical state of the pieces of Vaseline.**
44. a) Name the source of energy for each of the following energy resources.
(i) hydroelectricity - **Fast flowing water.**
(ii) thermal energy - **Fossil fuels (coal, petroleum, natural gas)**

- b) State any **one** advantage of using hydroelectricity over thermal energy.
- ✓ **The source of hydroelectricity can be replaced naturally yet the source of thermal energy cannot.**
 - ✓ **Hydroelectricity does not produce smoke that pollutes the environment yet thermal electricity does.**
 - ✓ **The equipment that use hydroelectricity do not lead to competition for oxygen when in use unlike those that use thermal energy like paraffin stoves and lamps.**
 - ✓ **Hydroelectricity is less inflammable than thermal electricity.**
- c) Give any **one** reason why solar energy is used by few people in the community.
- ✓ **Solar equipment are expensive to buy.**
 - ✓ **Installation and maintenance of solar equipment require skilled labour.**
 - ✓ **Solar electricity is not effective during rainy and cloudy days.**
(Reject: solar is expensive)

45. a) Which group of birds feed on leftover flesh (carrion)?
✓ **Scavenger birds.**
- b) Give any **two** examples of birds that belong to the above group.
✓ **Crows / marabou storks / vultures.**
- c) State any **one** way in which the group of birds given in (a) above are important in the environment.
✓ **They clean the environment by feeding on carrion.**
✓ **They feed on carrion which helps to reduce unpleasant smell in an area.**

46. The table below shows the pieces of information carried out by a poultry farmer. Study and use it to answer the questions that follow.

Month	September	Breeds of chicken	exotic
Age of the flock	4 months	Number of chicken	100 birds

Number of eggs					
Day	Morning	Afternoon	Broken	Good	Total
Monday	50	40	10	80	90
Tuesday	55	46	none	111	111

- a) Identify the pieces of information shown in the table above.
✓ **Farm records.**
- b) State any **one** reason why the above pieces of information is important to a poultry farmer.
✓ **For fair taxation by the government.**
✓ **To identify areas of investment and development.**
✓ **Enables the farmer to get loans.**
✓ **Enables the farmer to know profits and losses.**
✓ **Enables the farmer to plan for the farm.**
- c) Give any **one** factor that might have caused the drop in the number of eggs collected on Monday.
✓ **Poor feeding of birds.**
✓ **Delayed collection of eggs leading to egg eating by birds.**
✓ **Poor handling of eggs during collection leading to breakage.**
✓ **Theft of eggs by the collectors not the poulterer.**
- d) What type of chicken is kept by the poultry farmer according to the above information?
✓ **Layers.**
47. a) Name any **two** things that attract insects to pollinate flowers.
✓ **Brightly coloured petals.**
✓ **Scent produced by the flowers.**
- b) State any **two** differences between insect pollinated flowers and wind pollinated flowers.
✓ **Insect pollinated flowers have brightly coloured petals yet wind pollinated flowers have dull petals.**
✓ **Insect pollinated flowers produce small quantities of rough pollen grains while wind pollinated flowers produce large quantities of light pollen grains.**
✓ **Insect pollinated flowers have a sticky stigma while wind pollinated flowers have a hairy stigma.**
✓ **Insect pollinated flowers have large petals while wind pollinated flowers have small petals.**
✓ **Insect pollinated flowers produce heavier pollen grains while wind pollinated flowers produce lighter pollen grains.**

48. The diagram shows three drums of different sizes. Study and use it to answer the questions that follow.



- a) Identify the drum that will produce sound of the highest pitch.
✓ **Drum Q.**
- b) Why will the drum identified in (a) above produce sound of the highest pitch?
✓ **Drum Q has a smaller vibrating surface for faster vibration when hit.**
- c) State any **one** factor that determines the pitch of sound produced by the above drums.
✓ **Size of the drum.**
✓ **Tension of the skin.**
✓ **Frequency.**
✓ **Wave length.**
- d) Name the group of musical instruments in which you would put the above drums.
✓ **Percussion musical instruments.**
49. a) Give any **one** way in which joints are adapted to friction free movement.
✓ **Joints contain synovial fluid which lubricates bones to reduce friction.**
✓ **Joints have cartilages which prevent bones from rubbing against each other.**
- b) State any **two** importance of having regular physical exercises to the body.
✓ **Physical exercises increase body flexibility.**
✓ **Regular exercises reduce the level of fats in the body.**
✓ **Reduce body weight.**
✓ **Improve the body's ability to resist some diseases.**
✓ **Regular body exercise improve blood circulation in the body.**
✓ **Regular exercise improve digestion and food absorption in the body.**

- c) Apart from having regular physical exercises, give any **one** other health practice that helps to keep the muscular skeletal system in a good working condition.

- ✓ **Feeding on a balanced diet to prevent deficiency diseases of the system.**
- ✓ **Maintain posture.**
- ✓ **Taking infants for immunization.**
- ✓ **Treating diseases as soon as signs are detected.**
- ✓ **Avoid playing rough games that may lead to injuries.**

50. a) Mention any **two** foreign bodies that can enter into the eye.

- ✓ **Small insects.**
- ✓ **Sand particles.**
- ✓ **Tiny seeds.**
- ✓ **Iron filings.**
- ✓ **Grass.**
- ✓ **Soil.**
- ✓ **Dust.**

- b) Give any **one** first aid you can give to a person who has foreign bodies in the eye.

- ✓ **Wash the eye with plenty of clean warm water.**
- ✓ **Use a piece of soft clean cloth to gently wipe the eye.**

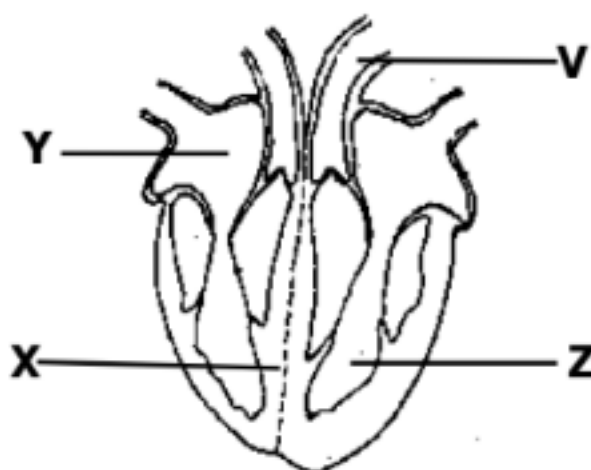
- c) Why is it not advisable to give food or drinks to a convulsing victim?

- ✓ **Giving food and drinks may lead to choking and cause death.**

51. The table below shows some common crop growing practices, materials used and their importance in the garden. Study and complete it correctly.

Crop growing practice	Material used	Importance in the garden
<u>Weeding</u>	hand hoe	Reduces competition for nutrients between crops and weeds.
Mulching	dry grass	Controls soil erosion. Controls the growth of weeds. Conserves moisture in the soil.
<u>Harrowing</u>	forked hoe	Makes the surfaces of the soil levelled.
Pruning	Secateurs / Pruning saw	Reduces the weight of the plant.

52. a) Name the eye defect which is corrected using a convex lens.
 ✓ **Long sightedness / long sight / hypermetropia.**
- b) Give any **two** causes of the eye defect named in (a) above.
 ✓ **Too short eyeball.**
 ✓ **Too thin eye lens.**
- c) Why is the convex lens used to correct the eye defect named in (a) above?
 ✓ **The convex lens converge light rays from nearby objects to focus images on the retina.**
 ✓ **The convex bends the light rays inwards so that they focus on the retina and not in front of it.**
53. The diagram below shows the human heart. Study and use it to answer the questions that follow.



- a) Name the parts marked **V** and **Y**.
 (i) **V - Aorta.**
 (ii) **Y - Right atrium / right auricle.**
- b) State the function of part marked **X** in the human heart.
 ✓ **Prevents oxygenated blood from mixing with deoxygenated blood.**
 ✓ **Separates the left and right sides of the heart.**
- c) How is part marked **Z** able to pump blood at a higher pressure?
 ✓ **Has thicker cardiac muscles.**
 ✓ **Has thick walls. / It is thick walled.**

54. a) State the function of a reflector in a torch.
✓ **A reflector diverges light rays and sends them forward when the torch is in use.**
- b) Why doesn't a dry cell powered torch have the fuse?
✓ **A dry cell powered torch uses fixed voltage.**
- c) Give any **two** factors that may make a torch fail to produce light when the switch is turned on.
- | | |
|--|--|
| ✓ Poor arrangement of dry cells. | ✓ Rusty internal metallic plates. |
| ✓ Incomplete circuit in the torch. | ✓ Exhausted dry cells. |
| ✓ Faulty torch switch. | ✓ Poorly placed bulb in its holder. |
| ✓ Blown electric bulb in the torch. | |

55. The diagram below shows a medical document used in the promotion of One of the elements of Primary Health Care. Study and use it to answer the questions that follow.

District _____		Child's registration No: _____	
Health Unit _____		_____	
Child's name: _____		Birth weight (Kg): _____	
Sex _____	Date of birth _____	_____	
	<i>Day</i> <i>date</i> <i>year</i>	Birth order: _____	
Mother's name: _____		Mother's occupation: _____	
_____		_____	
Father's name: _____		Father's occupation: _____	
_____		_____	
Where the child lives: _____			
Sub-county/ Division: _____			
Parish: _____			
LC1: _____			

- Identify the medical document shown in the diagram above.
✓ **Child health card.**
 - State any **one** way in which the medical document above is important to a health worker.
✓ **It helps a health worker to identify the vaccines already given.**
✓ **It helps a health worker to know the remaining vaccines that**
 - Name any **one** vaccine that the body receives first basing on the above medical document.
✓ **Polio vaccine** ✓ **BCG Vaccine**
 - Which element of Primary Health Care involves the use of the above medical document?
✓ **Immunization.**
- 