

# THE E-LEARN EXAMINATIONS BOARD

PRE NATIONAL MOCK 2024

SET ONE / FOUR

INTEGRATED SCIENCE GUIDE

Time Allowed: 2 hours 15 minutes



Index No.	EMIS No.					Personal No.		

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**Read the following instructions carefully:**

1. Do not forget to write your **school** or **district name** on the paper.
2. This paper has two sections: **A** and **B**.  
Section **A** has **40** questions and section **B** has **15** questions. The paper has **10** printed pages altogether.
3. Answer **all** questions. **All** working for both sections **A** and **B** must be shown in the spaces provided.
4. **All** answers **must** be written using a **blue** or **black** ball point pen or ink. Any work written in pencil will **not** be marked.
5. Unnecessary **changes** in your work and handwriting that cannot be read easily may lead to **loss of marks**.
6. Do not fill anything in the table indicated: **"For Examiners' use only"** and boxes inside the question paper.

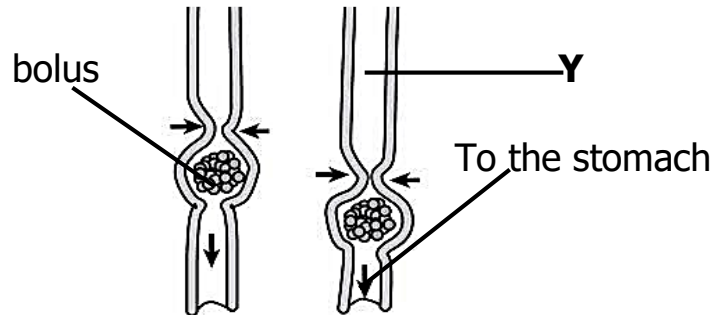
FOR EXAMINERS' USE ONLY		
Qn. No.	MARKS	EXR'S NO.
1 – 10		
11 – 20		
21 – 30		
31 – 40		
41 – 43		
44 – 46		
47 – 49		
50 – 52		
53 – 55		
TOTAL		

## SECTION A: 40 MARKS

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

1. Write any **one** natural source of sound.  
✓ **Man // birds // cow // a dog // thunder**
2. State the type of clouds that resemble cotton piles in the sky.  
✓ **Cumulus clouds**
3. How are monotreme mammals similar to birds in terms of fertilization.  
✓ **Both monotremes and birds undergo internal fertilization.**
4. Write **one** role played by a school health committee in the control of ringworm at school.  
✓ **A school health committee promotes proper personal hygiene among school children.**
5. State the main feature of sand soil which makes it suitable for cleaning utensils like saucepans.  
✓ **Sand soil has rough texture.**  
✓ **Sand soil has rough soil particles.**
6. Give **one** way how cooks retain heat in the saucepan during cooking.  
✓ **By covering food with banana leaves.**
7. Besides identification, how is a comb important to a bird?  
✓ **For temperature regulation.**  
✓ **For attraction of female for mating.**
8. Mention **one** importance of physical changes in the environment.  
✓ **Evaporation helps to separate mixtures.**  
✓ **Condensation helps in the formation of rain.**  
✓ **Freezing helps in the preservation of food stuffs.**
9. Name the part of a tap root which protects the growing tip from mechanical damage.  
✓ **Root cap**

The diagram below shows one of the parts of the alimentary canal. Use it to answer questions **7** and **8**.



10. Name the part of the alimentary canal marked **Y**.

✓ **Gullet / oesophagus.**

11. How does the bolus pass through part labeled **Y** above?

✓ **By peristalsis.**

12. Write **one** condition of weather.

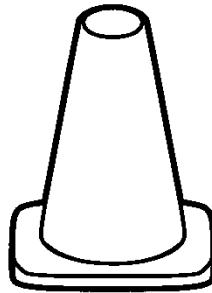
✓ **Sunny // windy // rainy // cloudy**

**REJECT: sunny weather // windy weather // cloudy weather**

13. Give **one** reason why steel is used to make artificial permanent magnets.

✓ **Steel retains magnetism for a long time.**

The diagram below shows one of the equipment used on a sports pitch. Use it to answer questions **12** and **13**.



14. State the importance of the above equipment on a football pitch.

✓ **For demarcating the area of usage on a football pitch.**

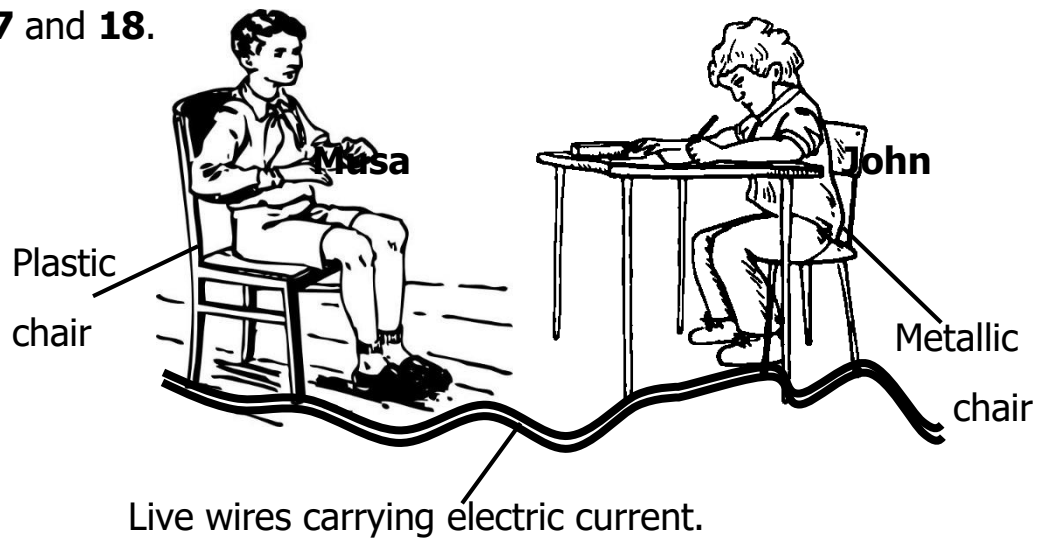
15. Why is the above item made of bright colours?

✓ **For easy identification**

16. How are delicate weather instruments protected from damage at a weather station?

✓ **By keeping delicate weather instruments in a Stevenson screen.**

The diagram below shows two boys, Musa and John seated on different materials, one plastic chair and the other metallic. Study it and answer questions **17** and **18**.



17. Who of the two boys will be shocked by electricity?  
✓ **John**
18. Give a reason to support your answer in (17) above.  
✓ **A metallic chair is a good conductor of electricity unlike the plastic one.**
19. Name the blood cells manufactured in the bone marrows of long bones.  
✓ **White blood cells / Leucocytes**
20. When burning wood to form charcoal, logs of wood are covered with soil. State what would be formed if logs of wood are burnt openly without covering.  
✓ **Ash would be formed.**
21. State the reason why root tuber crops cannot be propagated through planting root tubers.  
✓ **Root tubers do not have buds that grow into anew plant.**
22. How is water similar to plants as resources?  
✓ **Both water and plants are renewable resources.**  
✓ **Both water and plants are renewable energy resources**
23. Besides enlargement of sexual organs, write **one** other primary sexual change common in adolescent boys and girls.

✓ **Production of gametes (reproductive cells)**

✓ **Development of gonads.**

24. State the function of white blood cells in the body.

✓ **To defend the body against diseases.**

✓ **To fight against germs.**

25. What type of pollination occurs in a flower where filaments grow taller than the style?

✓ **Self-pollination**

26. Mention **one** biological way of controlling weeds.

✓ **Keeping bioagents // Grazing/feeding animals on weeds**

27. How do cattle protect themselves from enemies?

✓ **By goring**

28. Give the similarity between yeast and amoeba in terms of reproduction.

✓ **Both yeast and amoeba undergo asexual reproduction.**

29. Write down **one** advantage of hand milking.

✓ **Hand milking is cheap // it does not need skilled labour.**

30. Name the substance in tobacco smoke which stimulates the releases of dopamine in the body.

✓ **Nicotine REJECT: tar**

31. How does stale air from the VIP latrine pass through the vent pipe?

✓ **Through convection.**

32. Name the intestinal worm which feeds by diffusion.

✓ **Tapeworm**

33. Give **one** way how the item below can be of use on a cattle farm.



✓ **It can be used for open castration.**

34. State any **one** substance absorbed in the stomach.

✓ **Simple sugar // common salt // Alcohol / drugs**

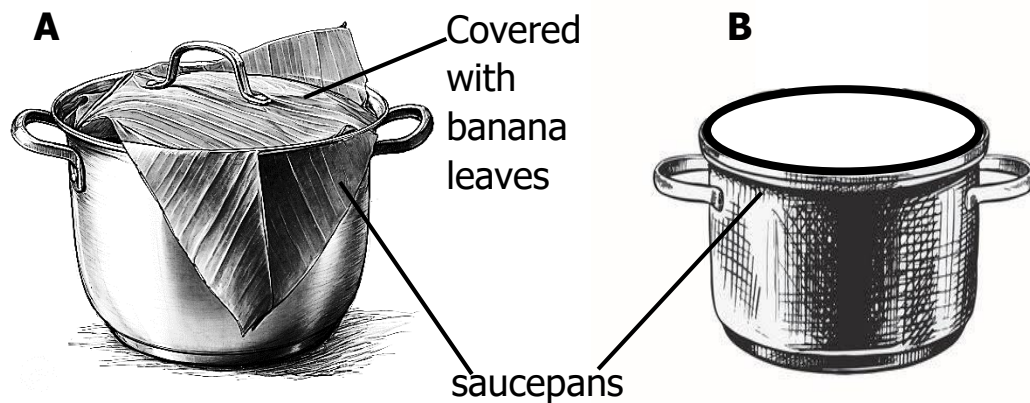
35. Give **one** type of lice which attacks people.  
✓ **Crab lice // hair lice // body lice**
36. Name the part of a VIP which may control the spread of trachoma.  
✓ **Fly screen/Screen**
37. A P.7 candidate broke down a bar magnet in two equal parts. What happened to each piece of the bar magnet?  
✓ **Each piece of a magnet became an independent magnet.**
38. How do birds benefit from their hollow bones?  
✓ **Hollow bones reduce the weight of a bird for easy flight.**
39. What type of mosquitoes lay eggs with air floats?  
✓ **Female anopheles mosquito**
40. Name the deficiency disease prevented by feeding on the food value obtained from fish.  
✓ **Kwashiorkor**                      **REJECT: Proteins**

### **SECTION B: 60 MARKS**

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

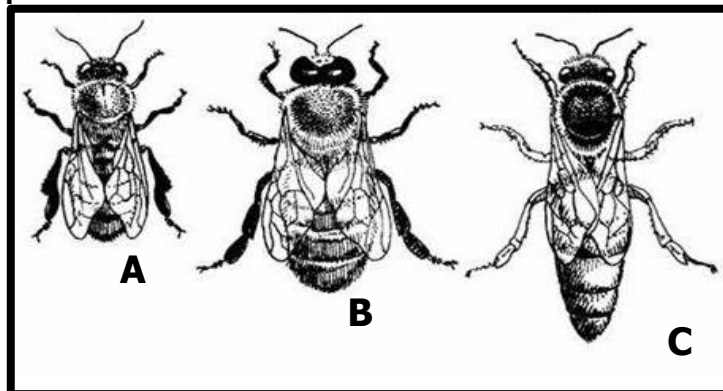
41. (a) State the energy changes which take place in the following gadgets:
- (i) Dynamo - **mechanical energy inform of kinetic energy changes to electrical energy.**
- (ii) Percolator - **electrical energy changes to heat energy.**
- (b) Write any **one** living source of electricity.  
✓ **Electric eel**
- (c) How does rural electrification help to conserve natural animal habitats like forests?  
✓ **Rural electrification reduces the rate of deforestation.**  
✓ **It discourages deforestation.**

42. The diagrams below show **two** different saucepans **A** and **B** containing raw food. Study them carefully and answer the questions that follow.



- (a) In which of the above diagrams will food be cooked faster.  
✓ **In A**
- (b) Give a reason to support your answer.  
✓ **Food is covered with banana leaves which retain heat in the saucepan for faster cooking.**
- (c) By what process does heat reach the raw food through the saucepan.  
✓ **Through conduction.**
- (d) Besides cooking, give **one** other importance of heat in our daily life.  
✓ **Heat provides warmth to people.**  
✓ **Heat helps in ironing.**  
✓ **Heat helps in rain formation.**  
✓ **Heat helps in food preservation by sun drying.**

43. Below, are different types of honey bees. Use them to answer the questions that follow.



(a) Which of the above bees lays eggs in the hive?

✓ **Bee C**

(b) Write any **two** duties of a worker bee in a hive.

✓ **Cools the temperature in the hive.**

✓ **Feeds the grubs.**

✓ **Makes honey // guards the hive.**

✓ **Makes royal jelly for the queen to feed on.**

(c) What food value do we obtain from eating honey?

✓ **Carbohydrates**

44. Match the following elements of PHC to their activities correctly.

**A**

Water and sanitation

Maternal and child health

Family planning

Oral and dental health

**B**

dental flossing.

draining stagnant Water.

prolonged breast feeding.

immunizing pregnant  
women with T.T Vaccine.

(i) Water and sanitation - **draining stagnant water**

(ii) Maternal and child health – **immunizing pregnant women with TT vaccine**

(iii) Family planning – **prolonged breast feeding.**

(iv) Oral and dental health – **dental flossing**

45. (a) To what type of change do we group digestion in man?

✓ **Chemical change**

(b) Write **two** ways of managing body changes.

✓ **Bathing daily.**

✓ **Shaving overgrown pubic hair.**

(c) Why is burning referred to as a chemical change?

✓ **Burning is irreversible // burning forms anew substance.**



46. (a) What does letter "I" stand for in the abbreviation **PIASCY**?

✓ **Initiative**

(b) Give **two** life skills that children get through **PIASCY** messages.

✓ **Self esteem // self-awareness**

✓ **decision making // assertiveness**

(c) Write the **PIASCY** message which helps to the prevent **HIV/AIDS**.

✓ **Abstinence / abstinence from sex**

47. The diagram below shows a skull of a certain mammal. Use it to answer the questions that follow.



(a) To which sub class of mammals do animals with such a skull belong?

✓ **Carnivorous mammals**

(b) What kind of food do such mammals feed on?

✓ **Flesh**

(c) How is an animal with such a skull adapted to its mode of feeding?

✓ **It has well developed canines for tearing flesh.**

(d) Give **one** example of an animal with such a skull.

✓ **Dog // hyena // domestic cat // tiger**

48. (a) Name **two** examples of fuel obtained from crude oil.

✓ **Petrol // diesel/kerosene**

(b) How are the fuels mentioned in **48(a)** above separated from crude oil?

✓ **By fractional distillation**

(c) Under which principle does the method in (b) above work?

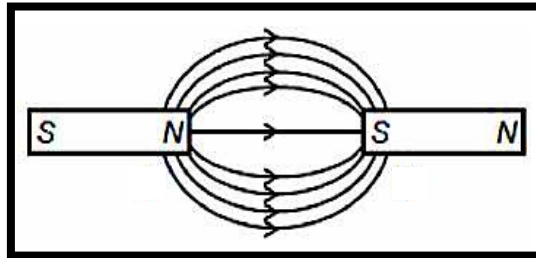
✓ **Different liquids have different boiling points.**

49. (a) Give **two** functions of muscles to the human body.
- ✓ **Muscles help in body movement through contraction and relaxation.**
  - ✓ **Muscles help animals to perform heavy duties.**
  - ✓ **Muscles of the heart help to pump blood.**
  - ✓ **Muscles of the eye regulate the amount of light entering the eye.**
- (b) Name **one** organ in the body made of cardiac muscles.
- ✓ **The heart**
- (c) Give the main reason why biceps and triceps are called antagonistic muscles.
- ✓ **Biceps and triceps work in pairs and oppose the action of each other.**
50. (a) Name the force which:
- (i) holds molecules of water together.
- ✓ **Cohesion force**
- (ii) enables small insects like mosquitoes to stand on water.
- ✓ **Surface tension**
- (b) Give **two** ways we can use “**air exerts pressure**” in our daily life.
- ✓ **It enables us to drink water using a straw.**
  - ✓ **It enables a cesspool emptier to suck wastes from the septic tank.**
  - ✓ **It enables a kite to fly in air.**
  - ✓ **It enables a doctor to inject medicine in a patient’s body.**
51. (a) Write **two** uses of magnets.
- ✓ **Magnets are used in electric bells.**
  - ✓ **Magnets are used in loud speakers.**
  - ✓ **Magnets are used in compasses to show direction.**
  - ✓ **They are used in dynamos and generators to produce electricity.**

(b) State the property of a magnet which enables a pilot to find direction.

✓ **A freely suspended magnet will always rest in North-South direction.**

(c) In the space provided below, draw an illustration of magnets to show that “**unlike poles attract**”



52. (a) Why are rabbits given a block of salt to lick?

✓ **To provide mineral salts to the rabbits.**

(b) Okello's rabbits have difficulty in breathing. Which disease are they suffering from?

✓ **Pneumonia**

(c) Mention **two** advantages of keeping rabbits over cattle.

✓ **Rabbits require a small piece of land while cattle need a bigger piece of land.**

✓ **Rabbits consume little food unlike cattle.**

✓ **Rabbits multiply faster than cattle.**

✓ **Rabbits are cheaper than cattle in terms of management.**

53. (a) Write **two** agents of seed dispersal.

✓ **Water // Explosion**

✓ **Animals // wind**

(b) How are coconut seeds dispersed?

✓ **By flowing water/ through water dispersal.**

(c) Give **one** way seed dispersal prevents extinction of plant species.

✓ **Plants colonise new areas hence reducing the chances of extinction.**

54. (a) Write **two** components of plant glucose made during photosynthesis.
- ✓ **Carbon dioxide**
  - ✓ **Water**
- (b) How does photosynthesis purify air?
- ✓ **By absorbing or trapping carbon dioxide from the atmosphere.**
- (c) Briefly write about a variegated leaf.
- ✓ **A variegated leaf is a leaf with many colours.**
55. Use the words given in the box below to fill in the spaces below.

**methane gas**

**fermentation**

**anaerobic**

**sludge**

Biogas is **methane gas** that is produced by rotting and **fermentation** of organic matter. After the formation of biogas, the waste material called **sludge** is taken and used as manure. Biogas is produced by **anaerobic** respiration with the help of anaerobic organisms.

**END**