



**SCIENCE**  
2011K3

THE KENYA NATIONAL EXAMINATIONS COUNCIL

**KCPE 2011**

Time: 1 hour 40 minutes

**INSTRUCTIONS TO CANDIDATES (Please read these instructions carefully)**

1. You have been given this question booklet and a separate answer sheet. The question booklet contains 50 questions.
2. Do any necessary rough work in this booklet.
3. When you have chosen your answer, mark it on the **ANSWER SHEET**, not in this question booklet.

**HOW TO USE THE ANSWER SHEET**

4. Use an ordinary pencil only.
5. Make sure that you have written on the answer sheet:

**YOUR INDEX NUMBER**  
**YOUR NAME**  
**NAME OF YOUR SCHOOL**

6. By drawing a **dark line** inside the correct numbered boxes mark your full Index Number (i.e. School Code Number and the three-figure Candidate's Number) in the grid near the top of the answer sheet.
7. Do not make any marks outside the boxes.
8. Keep the sheet as clean as possible and do not fold it.
9. For each of the questions 1 – 50 four answers are given. The answers are lettered A, B, C and D. In each case only **ONE** of the four answers is correct. Choose the correct answer.
10. On the answer sheet, show the correct answer by drawing a **dark line** inside the box in which the letter you have chosen is written.

**Example**

**In the Question Booklet.**

4. Which one of the following components of blood is involved in clotting after injury?
  - A. Plasma
  - B. White blood cells
  - C. Red blood cells
  - D. Platelets

The correct answer is D.

**On the answer sheet:**

4 [A] [B] [C] [D] 4 [A] [B] [C] [D] 20 [A] [B] [C] [D] 34 [A] [B] [C] [D] 44 [A] [B] [C] [D]

In the set of boxes numbered 4, the box with the letter D printed in it is marked.

11. Your **dark line** **MUST** be within the box.
12. For each question **ONLY ONE** box is to be marked in each set of four boxes.



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This Question Paper consists of 7 printed pages.  
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**TURN OVER**

1. Which one of the following diseases is a child immunized against at birth, sixth week, tenth week and fourteenth week after birth?

A. Measles.  
B. Yellow fever.  
C. Tuberculosis.  
D. Poliomyelitis.

2. Which one of the following is advisable when spraying with chemicals?

A. Spraying when the temperatures are very high.  
B. Wearing a gas mask when spraying.  
C. Spraying against the direction of wind.  
D. Washing hands before spraying.

3. Which one of the following pairs consists only of omnivorous animals?

A. Chimpanzee and pig.  
B. Chimpanzee and hyena.  
C. Hippopotamus and crocodile.  
D. Hippopotamus and pig.

4. The reason why some plants have thick waxy cuticle is to

A. store manufactured food  
B. reduce water loss  
C. allow breathing to take place  
D. trap more sunlight.

5. Which one of the following consists of groups of food that mainly contain fats?

A. Avocado, groundnuts, coconut.  
B. Maize, coconut, beans.  
C. Irish potatoes, groundnuts, maize.  
D. Irish potatoes, beans, avocado.

6. The first step in obtaining salt from a mixture of salt solution and pieces of copper wire is

A. filtering  
B. winnowing  
C. using a magnet  
D. evaporating to dryness.

7. Substances that have definite mass and volume are

A. solids only  
B. solids and liquids  
C. liquids only  
D. liquids and gases.

8. A lactating mother should feed on a diet rich in calcium and phosphorous in order to

A. enable her to regain strength  
B. replace blood lost during birth  
C. improve the immunity of the baby  
D. strengthen the bones of the baby.

9. Which one of the following is the most **effective** preventive measure against the spread of sexually transmitted infections amongst the youth in schools?

A. Seeking medical attention.  
B. Use of condoms.  
C. Circumcision.  
D. Abstinence.

10. Which one of the following pairs consist only of inclined planes?

A. Wheelbarrow and see-saw.  
B. Road winding up a hill and staircase.  
C. Ladder and see-saw.  
D. Wheelbarrow and staircase.

11. The percentage of the component of air in the atmosphere used by legumes to make proteins is

A. 78%  
B. 21%  
C. 0.97%  
D. 0.03%.

12. The following are signs and symptoms of anaemia **EXCEPT**

A. breathlessness  
B. pale white eyes  
C. muscle wastage  
D. tiredness.



13. Which one of the following consists only of a pair of animals that have constant body temperature?

A. Shark and whale.  
B. Tortoise and ostrich.  
C. Shark and bat.  
D. Bat and ostrich.

14. The following are some activities carried out in an experiment to investigate drainage in soil.

- Put equal amounts of three types of soil in separate funnels.
- Place the funnels on the mouth of each of the three plastic bottles.
- Put cotton wool in the neck of each funnel.
- Pour equal amounts of water on each type of soil at the same time.

Which one of the following is the **CORRECT** order of the activities?

- A. (i), (ii), (iii), (iv).  
B. (iii), (ii), (i), (iv).  
C. (i), (iii), (ii), (iv).  
D. (ii), (i), (iii), (iv).

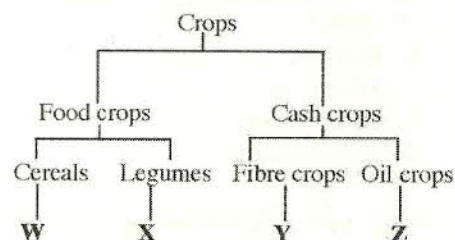
15. Which one of the following methods of soil conservation can be used to control splash erosion?

- A. Making terraces.  
B. Building gabions.  
C. Planting cover crops.  
D. Practising contour farming.

16. The effects of heat on ice that make it change to gaseous form are

- A. freezing and condensing  
B. melting and evaporating  
C. condensing and evaporating  
D. freezing and melting.

17. The chart below represents a simple classification of crops.



Which one of the following crops are **CORRECTLY** represented by W, X, Y and Z?

- |    | W          | X          | Y         | Z          |
|----|------------|------------|-----------|------------|
| A. | Sorghum    | Peas       | Sisal     | Sunflower. |
| B. | Peas       | Wheat      | Sunflower | Cotton.    |
| C. | Greengrams | Wheat      | Sisal     | Pawpaw.    |
| D. | Rice       | Greengrams | Kales     | Cotton.    |

18. The following is a feeding relationship that was observed in a certain habitat.

Maize grains → Rats → K → Hawks

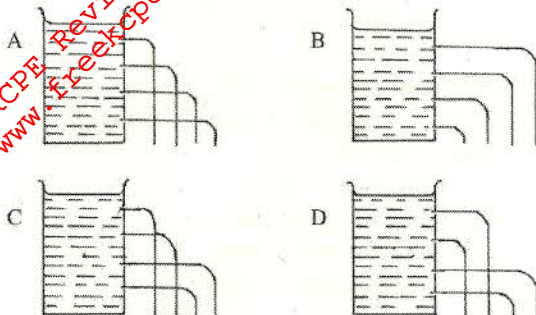
Which one of the following is **CORRECTLY** represented by K?

- A. Frogs.  
B. Snakes.  
C. Weaverbirds.  
D. Lizards.

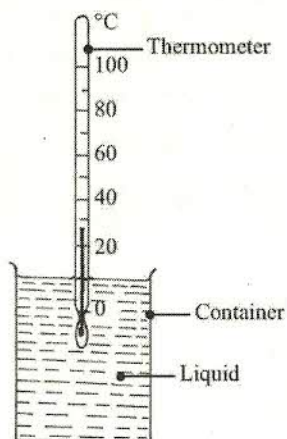
19. Which one of the following pests is **CORRECTLY** matched with the part of the crop it attacks?

- | Pest          | Part of crop attacked |
|---------------|-----------------------|
| A. Aphids     | Grains.               |
| B. Stalkborer | Leaves.               |
| C. Cutworm    | Stems.                |
| D. Weevils    | Leaves.               |

20. Which one of the following diagrams represents what is observed when water is poured into a tin can with holes of the same size at different depths?



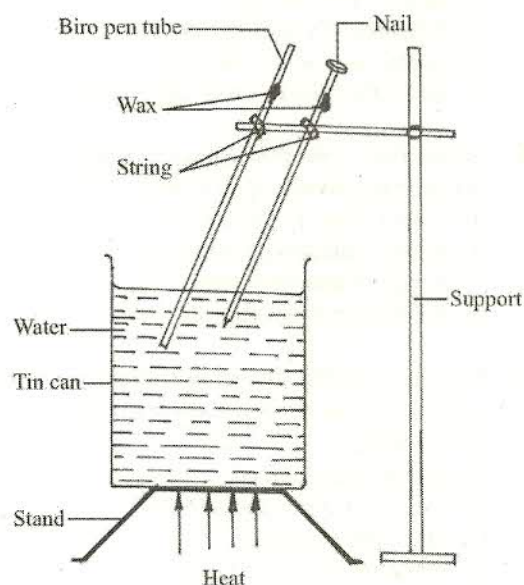
21. The diagram below represents a thermometer used to measure temperature of a certain liquid.



From the thermometer, the temperature of the liquid is

- A. 30°C
- B. 27°C
- C. 20°C
- D. 10°C

22. The diagram below represents a set-up that was used to demonstrate a certain aspect of heat.



The aspect demonstrated was

- A. conduction in different solids
  - B. convection in water
  - C. conduction in water
  - D. expansion in different solids.
23. To save a person who has touched an exposed electric wire, one should
- A. push the person away using dry wood
  - B. pull the person from the wire
  - C. pour cold water on the person
  - D. shake the person vigorously.
24. In a certain investigation pupils heated different materials and recorded their findings.
- Which one of the following **CORRECTLY** shows the pupils' findings?

**Materials that felt hot quickly**

- A. Rubber
- B. Copper
- C. Plastic
- D. Steel

**Materials that did not feel hot quickly**

- Iron.
- Aluminium.
- Glass.
- Wood.



25. Which one of the following statements is **NOT TRUE** about friction. Friction is a force that

A. makes work difficult  
B. is reduced by treading tyres  
C. can be used to produce fire  
D. affect the speed of moving objects.

26. Which one of the following statements describe a human canine tooth?

A. Chisel shaped with one root.  
B. Rough surface with two roots.  
C. Rough surface with three roots.  
D. Pointed tip with one root.

27. Which one of the following consists only of parts of the human body where digestion takes place?

A. Mouth and stomach.  
B. Large intestines and mouth.  
C. Liver and stomach.  
D. Large intestines and liver.

28. Which one of the following statements about reproduction in human beings is **CORRECT**?

A. Fertilization takes place in the uterus.  
B. Ovulation always takes place twice in a month.  
C. Uterine wall contracts during birth.  
D. The embryo develops into a zygote.

29. In which one of the following activities is water used for recreation?

A. Watering plants.  
B. Cooking.  
C. Washing clothes.  
D. Swimming.

30. In which one of the following is water used sparingly?

A. Using domestic waste water to clean toilets.  
B. Turning off water taps after use.  
C. Recycling waste water from factories.  
D. Using harvested rain water for animals to drink.
















31. When constructing a windvane the

A. pointer should be fixed on a short stand  
B. pointer should be firmly held to the stand  
C. pointer should be made of cardboard  
D. tail of the pointer should be larger than arrow head.






32. Which one of the following groups of planets are in the **CORRECT** order in terms of distance from the sun?

A. Venus, Mars, Earth.  
B. Earth, Saturn, Jupiter.  
C. Jupiter, Saturn, Uranus.  
D. Mars, Neptune, Uranus.

33. The diagram below represents a weather chart prepared by pupils.

DAY	MORNING	MID-MORNING	AFTERNOON
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			

KEY:

	Sunny
	Cloudy
	Rainy
	Windy
	Calm

Which one of the following statements is **CORRECT** about the weather chart?

A. Whenever it was sunny it was also calm at the same time.  
B. It only rained after calm conditions.  
C. Whenever it was rainy it was also windy at the same time.  
D. It rained only in the afternoons.

34. Birds that have short straight and thick beaks are

- A. filter feeders
- B. flesh eaters
- C. nectar feeders
- D. grain eaters.

35. In which one of the following does the load move through the same distance as the effort when in use?

- A. Crowbar.
- B. Flagpost.
- C. Spade.
- D. Clawhammer.

36. Which one of the following pairs of objects will float on water?

- A. Coin and candlewax.
- B. Bottle opener and needle.
- C. Biro pen casing and rubber band.
- D. Nail and bottle top.

37. During a demonstration to investigate a certain property of matter, soil was put in a small container and then dipped in water in a basin.

This was to show the presence of

- A. air in water
- B. water in soil
- C. minerals in soil
- D. air in soil.

38. Which one of the following pairs of materials are good conductors of electricity?

- A. Steelwool and glass.
- B. Coin and chalk.
- C. Pins and dry wood.
- D. Aluminium foil and razor blade.

39. Which one of the following statements about energy is **TRUE**? Energy is

- A. a push or a pull
- B. ability to do work
- C. force that moves a load
- D. force overcome by a machine.

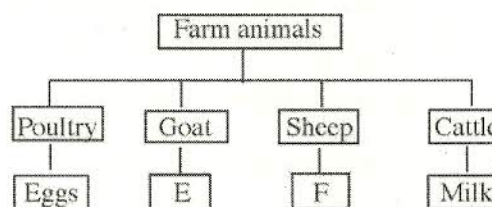
40. Driving a motor vehicle with a well maintained engine will **mainly** control pollution in

- A. air only
- B. water only
- C. soil and air
- D. air and water.

41. A flower which has long feathery stigma and loosely held anthers is also likely to

- A. have brightly coloured petals
- B. have sweet scent
- C. produce many pollen grains
- D. produce nectar.

42. The chart below shows some farm animals and their products.

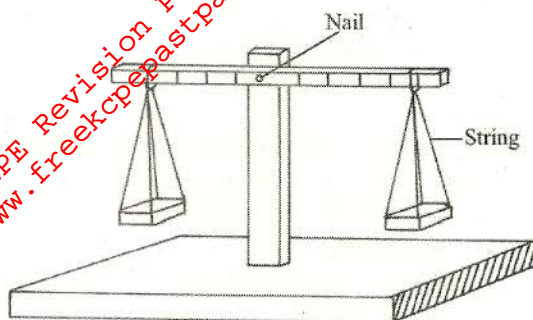


Which products are represented by E and F?

- |    | <b>E</b> | <b>F</b> |
|----|----------|----------|
| A. | Milk     | Wool.    |
| B. | Wool     | Mutton.  |
| C. | Beef     | Mutton.  |
| D. | Milk     | Beef.    |



43. The diagram below shows a set-up used by pupils to carry out an investigation.



The investigation was to

- A. show how the length of strings used affects balancing of different materials
  - B. measure amount of force of different materials
  - C. show how different materials move up and down
  - D. compare the masses of different materials.
44. Which one of the following is **TRUE** about soil that has high water retention? It has
- A. large air spaces
  - B. low capillarity
  - C. fine texture
  - D. large particles.
45. Which one of the following is an effect of soil pollution?
- A. Formation of acid rain.
  - B. Death of small animals.
  - C. Interferes with photosynthesis.
  - D. Causes respiratory diseases.
46. Which one of the following groups consist only of external livestock parasites?
- A. Fleas, mites, ticks.
  - B. Roundworms, lice, mites.
  - C. Fleas, tapeworms, lice.
  - D. Mites, roundworms, ticks.
47. In which one of the following cases is friction a disadvantage?
- A. Grinding maize.
  - B. Writing.
  - C. A bird flying.
  - D. Braking.

48. Which one of the following is a source of electricity?

- A. Electromagnet.
- B. Bulb.
- C. Dynamo.
- D. Dam.

49. Which one of the following are both reasons for lighting a house?

- A. Safety and discouraging pests.
- B. Drying and discouraging pests.
- C. Warming and seeing clearly.
- D. Safety and warming.

50. In a certain investigation on soil, pupils heated soil in a container until smoke was produced. This was to investigate presence of

- A. air in soil
- B. organic matter in soil
- C. water in soil
- D. living organisms in soil.