



DEPARTMENT OF
EDUCATION

LOWER
SECONDARY
SCHOOL
CERTIFICATE
EXAMINATION
(LSSCE)

SCIENCE

Monday

07th October 2013

Time allowed: 3 hours
8:30 am – 11:30 am

Candidates are advised to
fully use the time
allocated

SC

INSTRUCTIONS TO CANDIDATES:

(To be read out by the external invigilator before the start of the examination)

There are **46** questions in this paper worth **50** marks. Attempt **ALL** questions even if you are not so sure of some of the answers.

The Examination is divided into three parts:

PART A: Multiple Choice (Questions 1 to 25)

PART B: Short Answer (Questions 26 to 45)

PART C: Extended Response (Question 46)

The Answer Sheet is part of the Examination Booklet. Take out the middle pages and remove the Answer Sheet by tearing along the perforation. You may use the blank sheet for rough work.

Write your candidate number, name and school name in the space given on the **ANSWER SHEET**.

For each question in **PART A**, choose the correct answer by writing the letter A, B, C or D in the space provided on the **ANSWER SHEET**.

For each question in **PART B** and **PART C**, work out the answer and write the answer in the space provided on the **ANSWER SHEET**.

If you find a question very difficult, do not spend too much time thinking about it. Skip the question and go on with the rest of the paper. If you have time in the end, return to the difficult questions and think about them more carefully.

Write your answers in **BLUE** or **BLACK** ink (pen or biro).

If you decide to change an answer, make your correction as shown below so that it is clear to the markers what your final answer is. Do **NOT** use correction fluid on your answer sheet.

Example



Hand in **BOTH** the Answer Sheet and the papers used for rough work at the end of the examination.

Extra time will NOT be allowed to complete the examination under any circumstances.

Penalty for cheating or assisting to cheat in national examinations is non-certification.

**DO NOT TURN OVER THIS PAGE AND DO NOT
WRITE UNTIL YOU ARE TOLD TO START.**

PART A: MULTIPLE CHOICE QUESTIONS

(QUESTIONS 1 to 25)

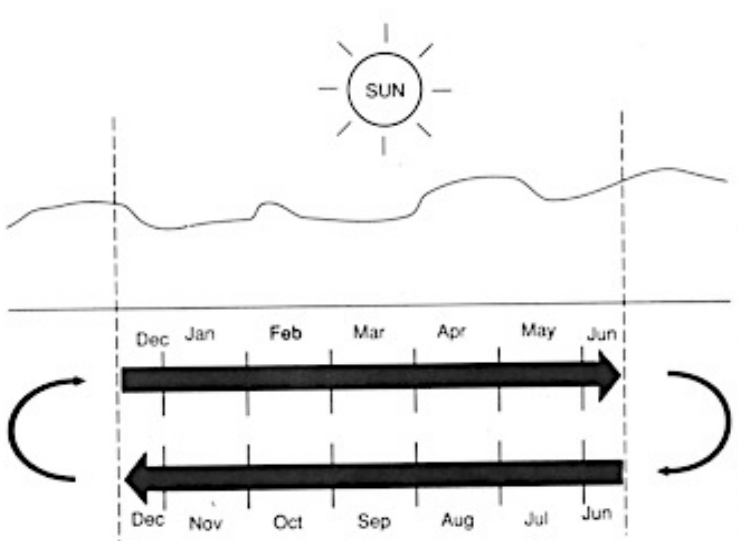
25 MARKS

For each question, choose the correct answer and write A, B, C or D in the space provided on the ANSWER SHEET.

For question 1, refer to the following information.

In traditional societies people know that seasonal variations are repeated year after year in a regular cycle. One way in which people forecast seasonal changes is by observing the position at which the sun sets on the horizon over the land or sea.

A horizon calendar shows the position of the sun on the horizon during a year.



A horizon calendar

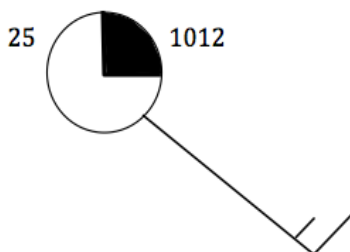
QUESTION 1

According to the horizon calendar given, if a particular location is experiencing dry season between the months of March and April, in which other months in the same year will it also experience dry season?

- A. May and June
- B. June and July
- C. August and September
- D. January and February

QUESTION 2

The diagram shows the weather data of a place.



What is the speed and direction of the wind?

- A. 10 kph from the north- west.
- B. 10 kph from the south- east.
- C. 15 kph from the north- west
- D. 15 kph from the south- east

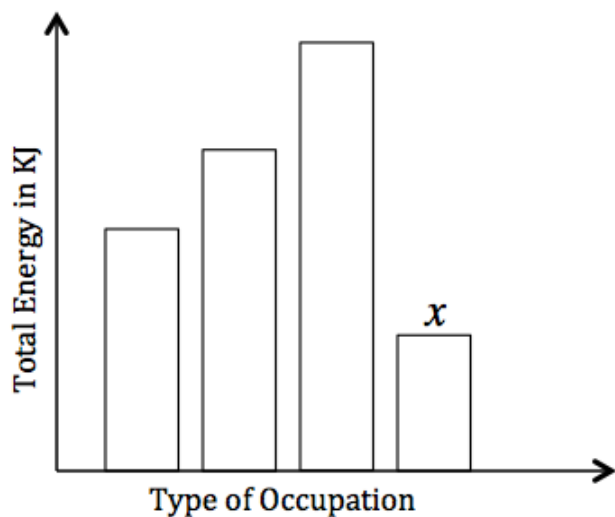
QUESTION 3

How is the behavior of light best explained when an image of a distant object is projected on the screen of a pinhole camera?

- A. Light is refracted when it travels through different mediums.
- B. Light is reflected when it reaches a reflecting surface.
- C. Light is absorbed when it reaches an opaque surface.
- D. Light travels in a straight line.

QUESTION 4

The graph below shows the total energy required by individuals of different occupations.



Which occupation would letter x most likely represent?

- A. Soccer player
- B. Clerk
- C. Carpenter
- D. Plumber

QUESTION 5

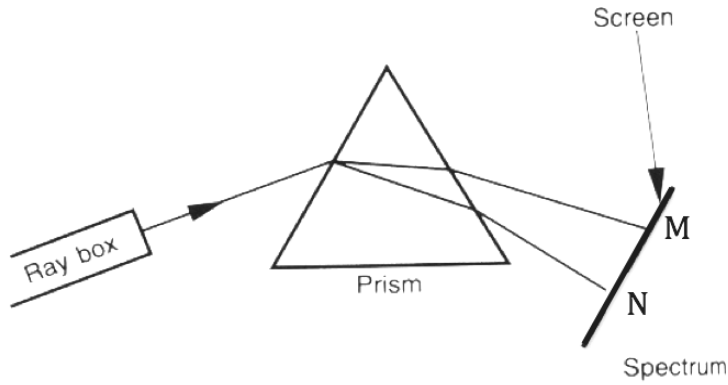
Charles conducted an experiment by reacting hydrochloric acid with calcium carbonate.

Which of the given equations below correctly shows a balanced chemical equation for the reaction?

- A. $\text{HCl} + \text{CaCO}_3 \longrightarrow \text{CaCl} + \text{CO}_2 + \text{H}_2\text{O}$
- B. $2\text{HCl} + \text{CaCO}_3 \longrightarrow \text{CaCl}_2 + \text{H}_2\text{O}$
- C. $2\text{HCl} + \text{CaCO}_3 \longrightarrow \text{CaCl}_2 + \text{CO}_2 + \text{H}_2\text{O}$
- D. $\text{HCl} + \text{CaCO}_3 \longrightarrow \text{CaCl} + \text{H}_2\text{O}$

QUESTION 6

The diagram below shows the dispersion of white light using a glass prism.



What would be the colours of M and N respectively?

	M	N
A	Red	Blue
B	Red	Violet
C	Blue	Red
D	Violet	Red

QUESTION 7

The list below shows parts of the eye.

Retina, Pupil, Eye lens, Vitreous humour

What is the correct order in which light passes through the eye?

- A. Eye lens, Vitreous humour, Retina, Pupil
- B. Vitreous humour, Retina, Pupil, Eye lens
- C. Pupil, Eye lens, Vitreous humour, Retina
- D. Pupil, Vitreous humour, Eye lens, Retina

QUESTION 8

The digestion of cellulose by herbivores is assisted by _____.

- A. fungi
- B. viruses
- C. bacteria
- D. algae

QUESTION 9

Logging forest for timber

- (i) increases carbon dioxide.
- (ii) destroys the habitats of flora and fauna.
- (iii) causes soil erosion.

Which of the following is true about excessive logging?

- A. i and ii only B. ii and iii only C. i and iii only D. i, ii and iii

QUESTION 10

A more reactive metal will displace a less reactive metal from its solution.

The following gives the reactivity of four metals, W, X, Y and Z.

Metal X will displace metal Y from its compound.

Metal Z will displace metal W from its compound.

Metal W will displace metal X from its compound

What is the order from the most reactive metal to the least reactive metal?

- A. X, Y, Z, W B. Z, W, X, Y C. W, X, Y, Z D. Y, Z, W, X

QUESTION 11

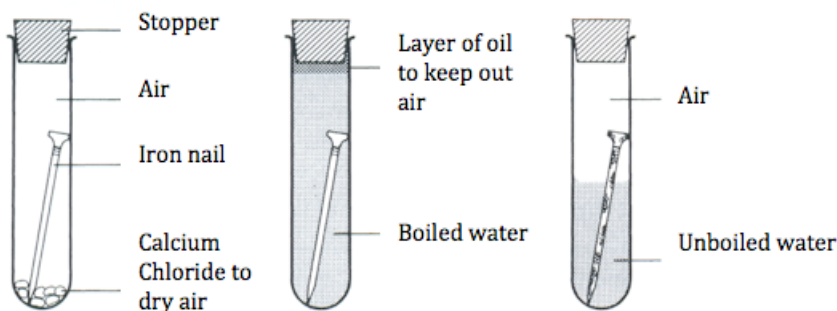
Corrosion of iron and steel is called *rusting*.

A student set up the following experiment to find out what substances enable corrosion to take place.

1. Dry Air

2. Boiled Water

3. Air and Water



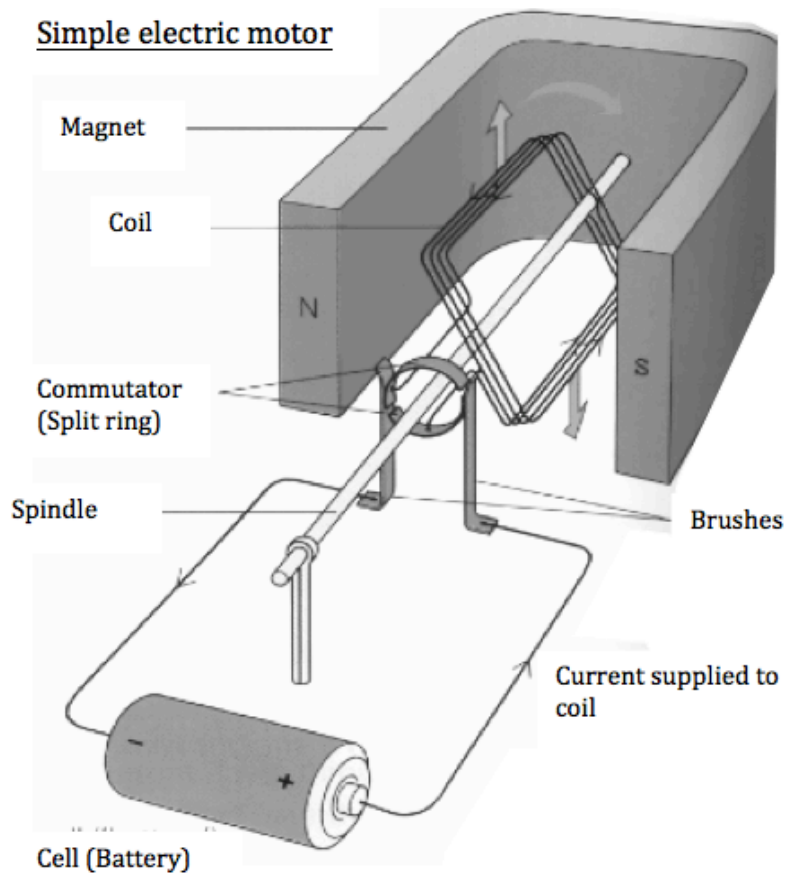
Nails 1 and 2 do not rust, Nail 3 does rust

What two substances enable corrosion to occur?

- A. Boiled water and oil B. Air and unboiled water
C. Unboiled water and oil D. Boiled water and dry air

QUESTION 15

The diagram shows basic set up of an electric motor.



What is the function of the commutator?

- A. Increases the current in the coil.
- B. Reverses the two fixed magnetic poles, which increases the current.
- C. Decreases the current in the coil.
- D. Reverses the current, which reverses the poles of the coil.

QUESTION 16

What are the products formed when hydrochloric acid reacts with calcium hydroxide?

- A. Sodium chloride and water.
- B. Sodium chloride and hydrogen.
- C. Calcium chloride and water.
- D. Calcium chloride and hydrogen.

QUESTION 17

For a long time people have known that

- (i) food quickly goes bad and cannot be eaten
- (ii) faeces and dead animals quickly begin to decay and smell
- (iii) houses and canoes do not last forever but eventually rot and must be replaced
- (iv) people and animals get sick and sometimes die.

It was difficult to explain why these things happened. However, the discovery of an instrument made it possible for scientists to explain these actions.

What is the name of this instrument?

- A. Binoculars.
- B. Telescope
- C. Stethoscope
- D. Microscope

QUESTION 18

Ryan cuts a lemon fruit and squeezes the juice into a test tube. He then dips a red litmus paper into the juice.

What will be the colour of the litmus paper?

- A. Blue
- B. Green
- C. Red
- D. Yellow

QUESTION 19

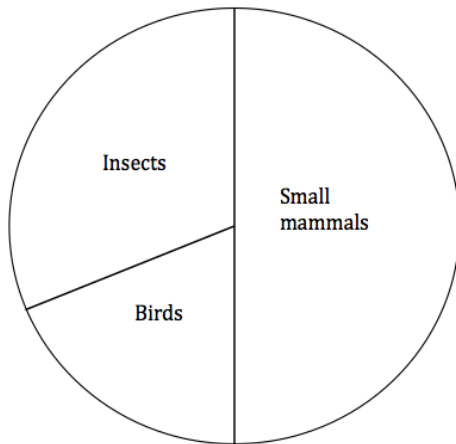
A student used a microscope to observe a drop of pond water.

Which of the following microbes is he most likely to see?

- A. Mould
- B. Virus
- C. Yeast
- D. Amoeba

QUESTION 23

An ecologist studying the diet of a particular kind of snake finds that the snake eats insects, small mammals and birds. The diagram shows the relative amounts of the snake's different prey.



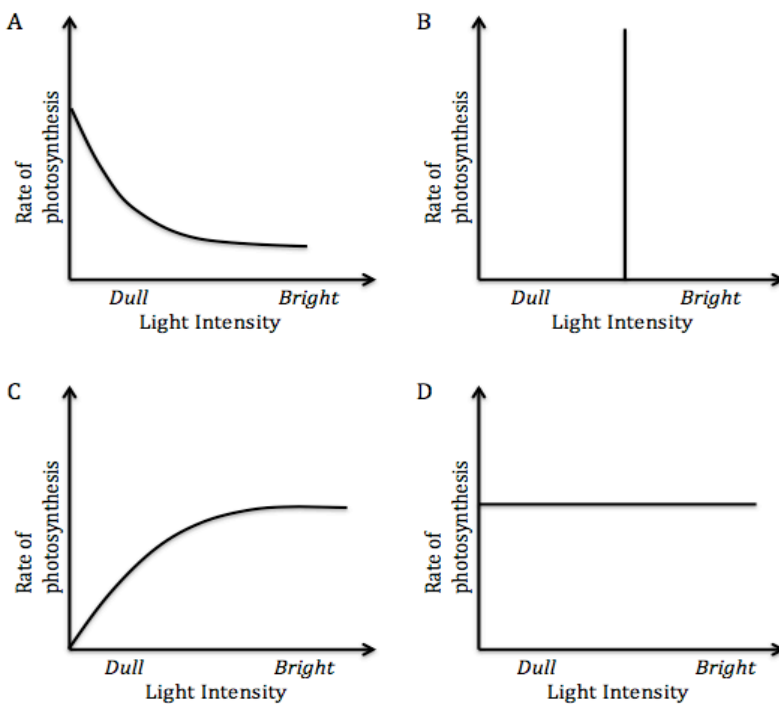
What approximate percentage of diet of the snake do insects make up?

- A. 30% B. 50% C. 80% D. 90%

QUESTION 24

The rate of photosynthesis depends on certain factors. One of these is light intensity. If the light is bright then photosynthesis speeds up.

Which graph correctly represents this information?



QUESTION 25

Which of the following is a function of the circulatory system?

- A. Break down and absorb food.
- B. Move food molecules and oxygen around the body.
- C. Support the body and protect organs.
- D. Conduct messages around the human body.

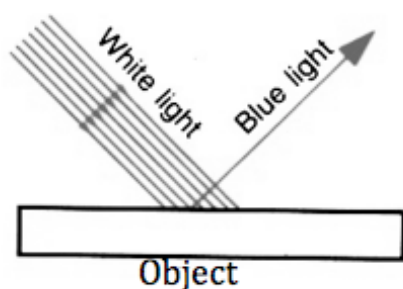
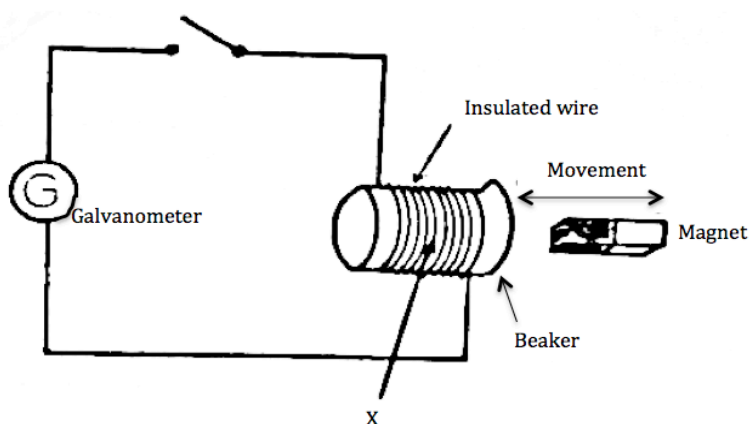
PART B: SHORT ANSWERS**(QUESTIONS 21 to 45)****20 MARKS**

For each question, work out the answer and write the answer in the space provided on the ANSWER SHEET.

QUESTION 26

The colour of an object depends on the colour of light it reflects.

Given this diagram, what is the colour of this object?

**QUESTION 27**

In the circuit shown above, kinetic energy is changed to _____ energy at X.

For questions 28 and 29, refer to the information below.

Tony carried out an experiment by reacting substance R with substance S. The reaction produced a gas that turned limewater milky.

QUESTION 28

What is the name of the gas produced? (*Correct spelling*)

QUESTION 29

Write the chemical name (not symbol) of limewater. (*Correct spelling*)

For questions 30 and 31, use the humidity table below to answer the questions.

Temperature of dry bulb °C	Depression of wet bulb (dry temperature — wet temperature) °C									
	1	2	3	4	5	6	7	8	9	10
50	94	89	84	79	74	70	65	61	57	53
45	94	88	83	78	73	68	63	59	55	51
40	93	88	82	77	71	65	61	56	52	47
35	93	87	80	75	68	62	57	52	47	42
30	92	86	78	72	65	59	53	47	41	36
25	91	84	76	69	61	54	47	41	35	29
20	90	81	73	64	56	47	40	32	26	18
15	89	79	68	59	49	39	30	21	12	4
10	87	75	62	51	38	27	17	5		

QUESTION 30

The dry bulb temperature is 30°C and the wet bulb temperature is 25°C.

What is the humidity?

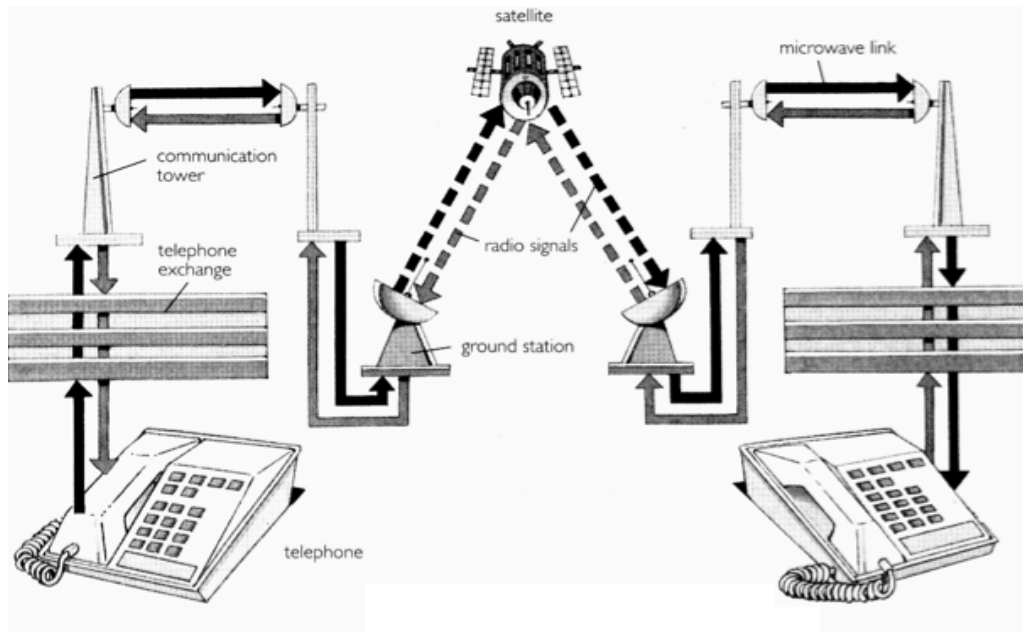
QUESTION 31

The humidity is 54% and the depression is 6°C.

What is the temperature of the dry bulb thermometer?

QUESTION 32

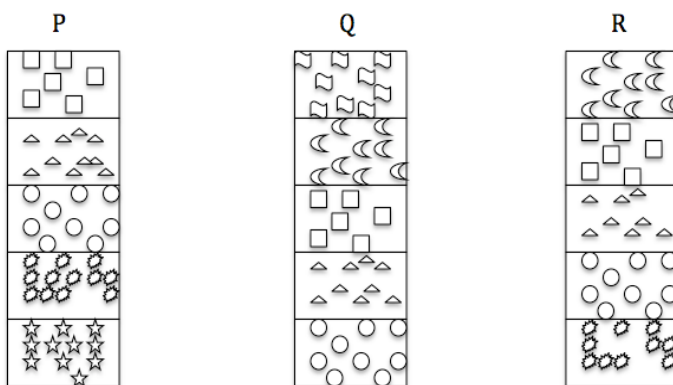
The diagram shows the telephone communication system.



Telephone communication over long distances is made possible by a _____.

For questions 33 and 34, refer to the diagram below.

The diagram shows the rock strata of three different areas, **P**, **Q** and **R**.

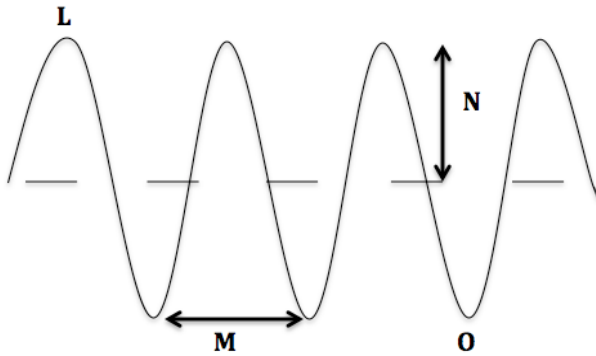


QUESTION 33

Identify the area that contains the oldest rocks and fossils.

QUESTION 34

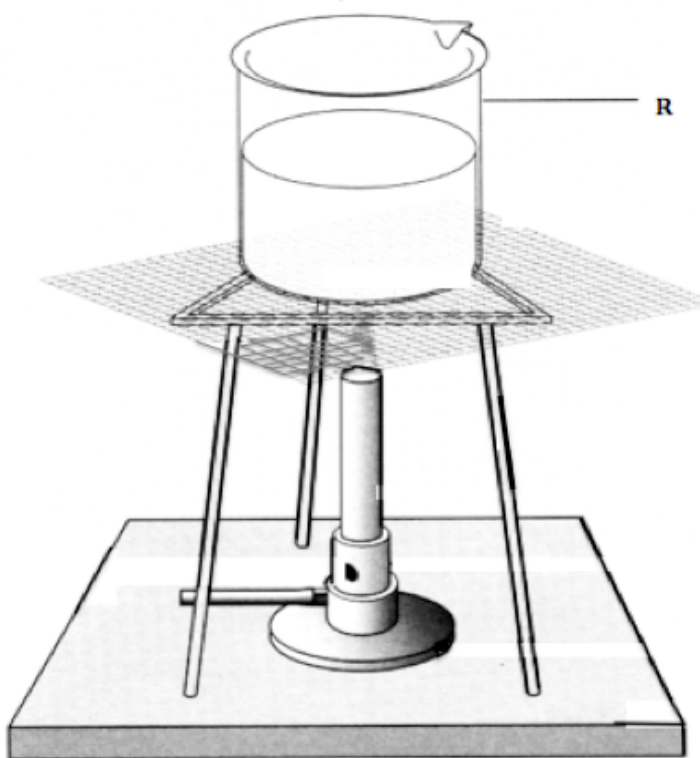
Which area contains the youngest rocks and fossils?

QUESTION 35

Write the letter that represents the amplitude of the wave.

QUESTION 36

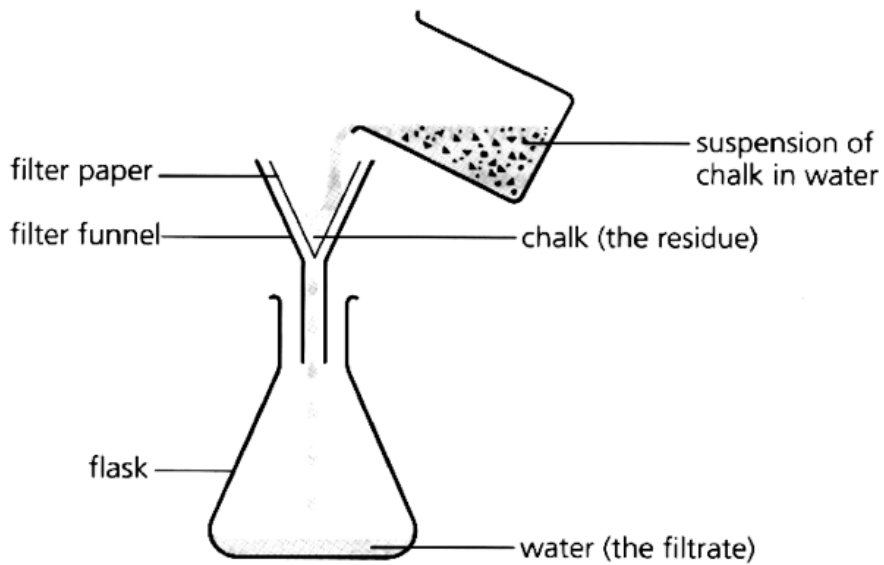
The diagram below shows a set up of an experiment.



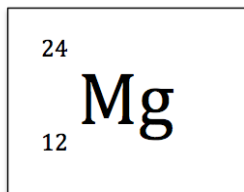
Name the apparatus labelled **R**. (*Correct spelling*)

QUESTION 37

The diagram below shows the procedure in separating solids from mixtures.



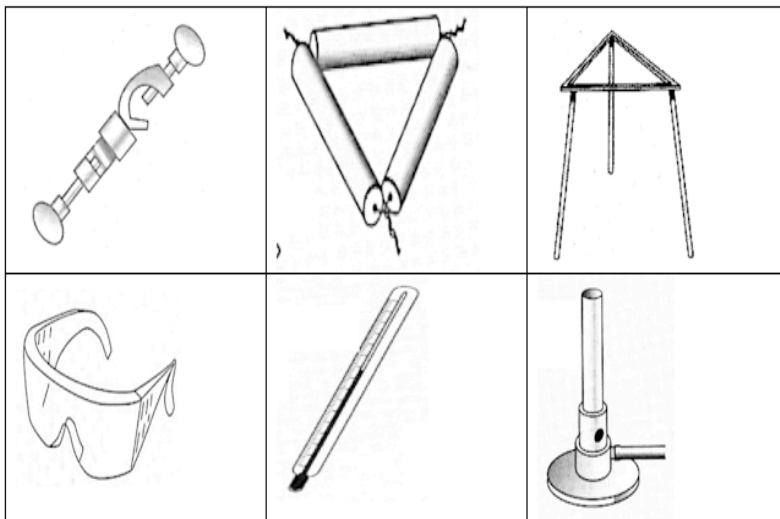
Name the method that is used in the diagram above to separate mixtures. (*Correct spelling*)

QUESTION 38

What is the atomic mass of the element given?

QUESTION 39

In the given diagram, identify and name the instrument that is commonly used by a medical doctor. (*Correct spelling*)

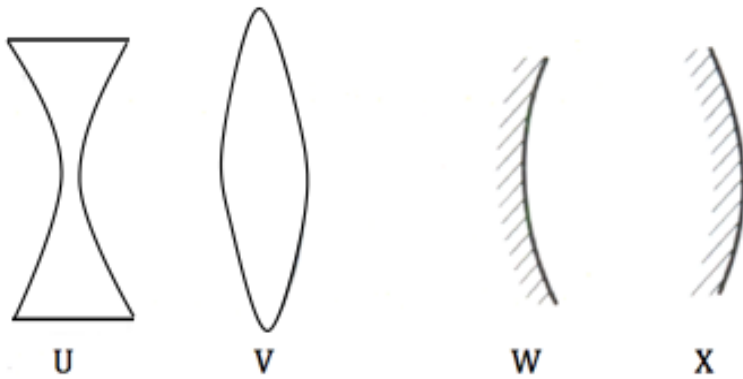


QUESTION 40

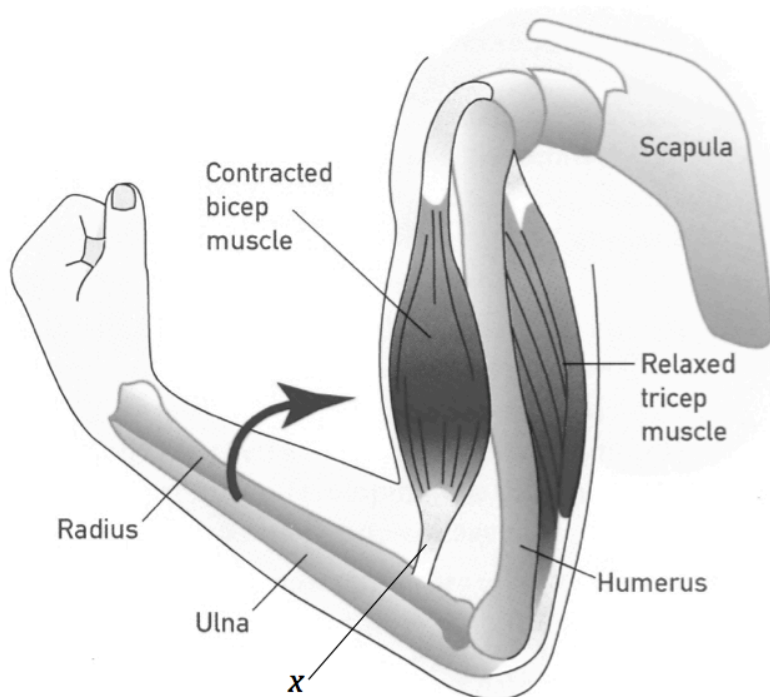
Micro-organisms that cause diseases are called _____ . (*Correct spelling*)

QUESTION 41

The diagrams below illustrate some optical items, U, V, W and X.



Which letter represents the optical item that can be worn to correct short sightedness?

QUESTION 42

What is the name of the part labelled **X**? (*Correct spelling*)

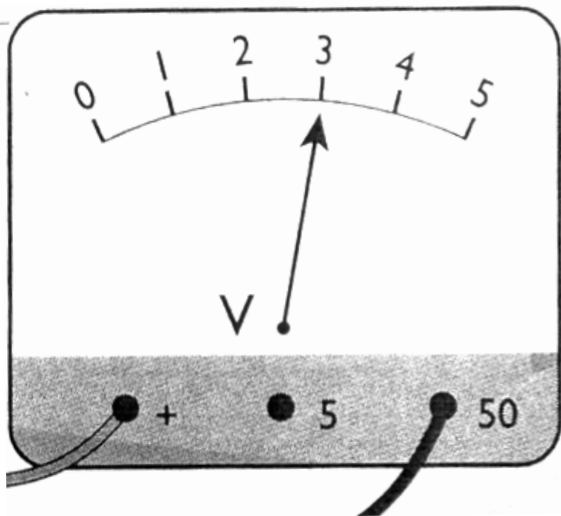
QUESTION 43

An object has a mass of 500 g and a volume of 10 cm³.

What is the density of the object in g/cm³? (Use formula: **Mass = Density x Volume**)

QUESTION 44

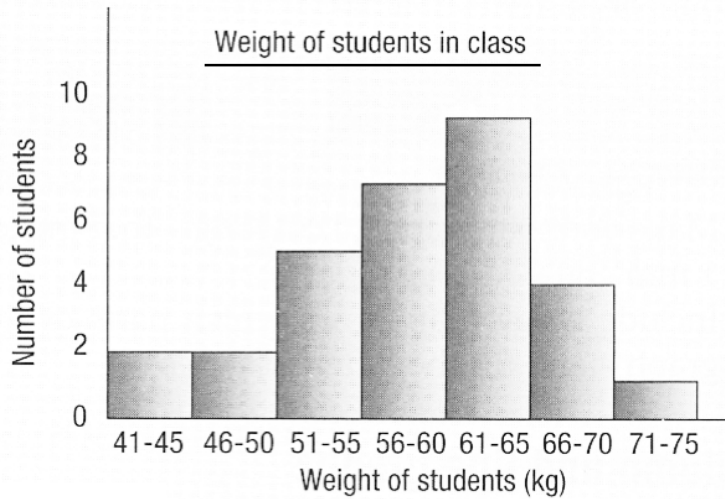
How many atoms are there altogether in this formula, NaNO₃?

QUESTION 45

What is the reading on the voltmeter?

PART C: EXTENDED RESPONSE**5 MARKS****QUESTION 46**

Doctor Jones measured the weights of students in 10A class and arranged his data on a histogram.



- How many students weigh between 51 and 55 kg? (1 mark)
- The most common range of weight of students in this class is _____ . (1 mark)
- What could be the heaviest student in this class? (1 mark)
- What could be the lightest weight in this class? (1 mark)
- How many students are there in this class? (1 mark)

END OF EXAMINATION

LOWER SECONDARY
SCHOOL CERTIFICATE EXAMINATION – 2013

SCIENCE – ANSWER SHEET



MARKER 1

YEAR		PROV.		SCHOOL			CAND No.		
1	3								
NAME									
SCHOOL									

PART A: (QUESTION 1 TO 25)

Write the letter of your answer next to each question number below.

1	
2	
3	
4	
5	

6	
7	
8	
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11	
12	
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16	
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21	
22	
23	
24	
25	

PART B (QUESTION 26 TO 45)

Write your answer next to each question number below.

26	
27	
28	
29	
30	%

31	°C
32	
33	
34	
35	

36	
37	
38	
39	
40	

41	
42	
43	g/cm ³
44	
45	Volts

PART C (QUESTION 46)

46.

a	students
b	kg
c	kg
d	kg
e	students



MARKER 2

DO NOT WRITE ON THIS PAGE

YOU MAY DO YOUR ROUGH WORK ON THIS PAGE

CAREFULLY TEAR ALONG THIS PERFORATION

YOU MAY DO YOUR ROUGH WORK ON THIS PAGE