



C A R I B B E A N E X A M I N A T I O N S C O U N C I L

C A R I B B E A N C E R T I F I C A T E O F S E C O N D A R Y L E V E L C O M P E T E N C E

I N T E G R A T E D S C I E N C E

S P E C I M E N P A P E R A N D K E Y

M U L T I P L E C H O I C E Q U E S T I O N S

75 Minutes

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

This specimen paper consists of 50 items.

Each item in this test has four suggested answers lettered (A), (B), (C), (D). Read each item you are about to answer and decide which choice is best.

Sample Item

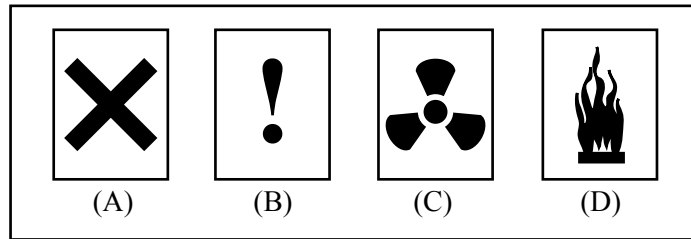
The amount of space taken up by an object is BEST described as its

- (A) mass**
- (B) length**
- (C) weight**
- (D) volume**

The best answer to this item is “volume”, so you should choose suggested answer (D).

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

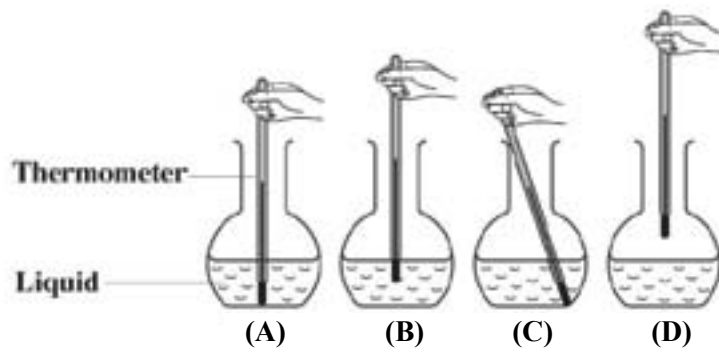
1. Which of the symbols shown below indicates that a substance is radioactive?



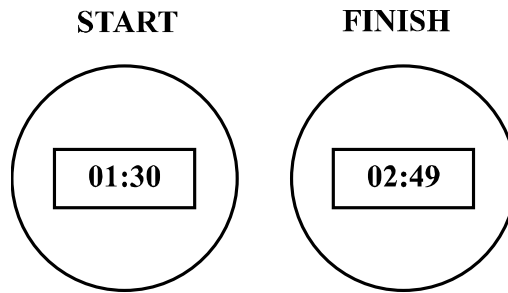
2. Which of the following natural disasters affect the Caribbean region MOST frequently?

- (A) Floods
- (B) Tsunamis
- (C) Hurricanes
- (D) Earthquakes

3. Which of the flasks below show the BEST position of the thermometer to determine the temperature of a liquid in a round-bottom flask?



Item 4 refers to the following diagrams of clocks showing the start and finish times for an athlete in a long distance race.



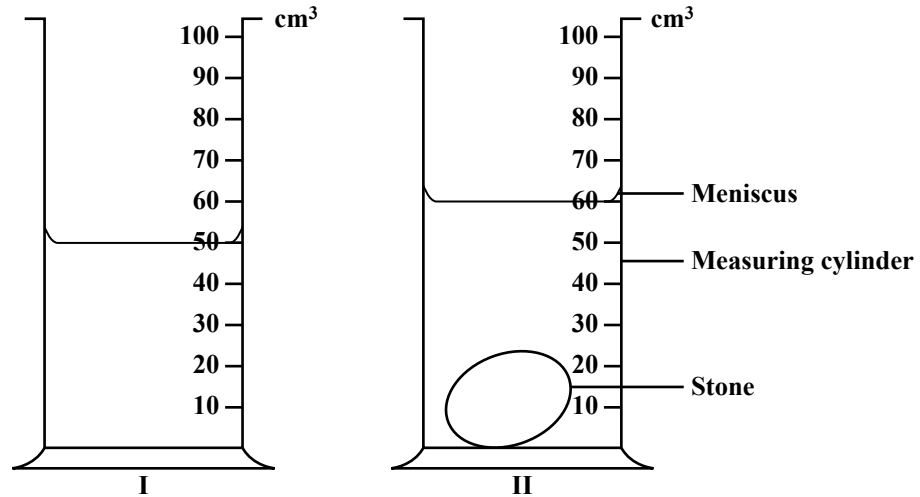
4. How long did it take the athlete to complete the race?

- (A) 1 hour 30 minutes
- (B) 1 hour 19 minutes
- (C) 2 hours 49 minutes
- (D) 4 hours 19 minutes

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Item 5 refers to the diagram and information below.

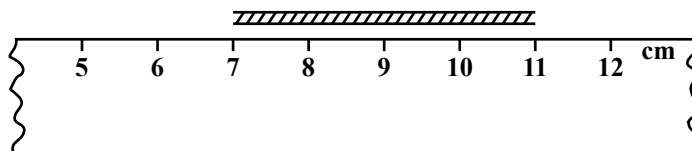
Sami poured water into a measuring cylinder as shown in Diagram I below. After a few minutes, she placed a stone in the measuring cylinder. The new volume is shown in Diagram II.



5. The volume of the stone is

- (A) 10 cm^3
- (B) 20 cm^3
- (C) 50 cm^3
- (D) 60 cm^3

Item 6 refers to the following diagram which shows part of a ruler and a piece of string.



6. The length of the string, in cm, is

- (A) 4
- (B) 5
- (C) 7
- (D) 11

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Item 7 refers to the following units of measurement which were used in an experiment.

°C	g	cm	ml
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7. Which of the following instruments was NOT used in this experiment?
- (A) Ruler
 - (B) Balance
 - (C) Stopwatch
 - (D) Thermometer
8. George plants crops on two similar plots of land, A and B. He provides shade on Plot A but not on Plot B. George believes that the plants on Plot A will grow much faster than those on Plot B. George's belief is called
- (A) a variable
 - (B) a hypothesis
 - (C) an expectation
 - (D) an observation

Items 9 – 10 refer to the following information.

A group of students want to investigate which ball had the most bounce and was therefore most suitable for playing tennis. They took four balls, each of diameter 6 cm, and bounced them in the car park. They bounced each ball five times from the same height and recorded the average rebound height.

9. What variable OTHER THAN height was kept constant?
- (A) Size
 - (B) Weight
 - (C) Colour
 - (D) Texture
10. The results for the experiment above are shown in the following table:

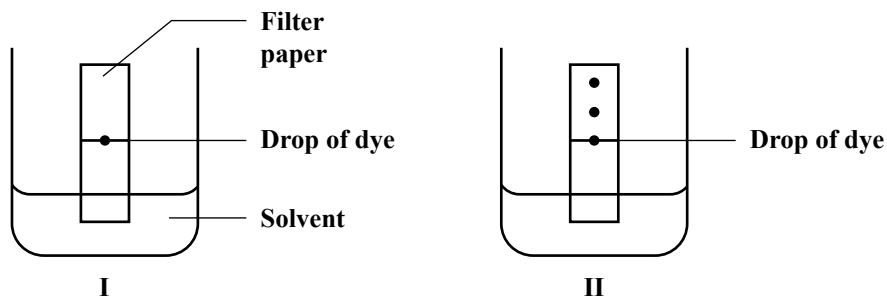
Ball	Average Rebound Height (cm)
W	15
X	25
Y	45
Z	75

Which ball has the HIGHEST bounce?

- (A) W
- (B) X
- (C) Y
- (D) Z

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Item 11 refers to the experiment set up as shown in Diagram I below. The separation of the dye after several hours is shown in Diagram II.



11. The process demonstrated above is

- (A) extraction
- (B) sublimation
- (C) distillation
- (D) chromatography

12. The freezing point of water is

- (A) 0 °C
- (B) 10 °C
- (C) 100 °C
- (D) 1 000 °C

13. Which of the following substances can cause water pollution?

- I Fertilizers
- II Pesticides
- III Detergents
- IV Crude oil

- (A) I and II only
- (B) II and III only
- (C) I, II, and III only
- (D) I, II, III and IV

14. The chemical symbol for calcium is

- (A) C
- (B) Ca
- (C) Cl
- (D) Cu

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Items **15 – 16** refer to the information below.

Four cylinders of potato, each of length 5.0 cm, were placed in an unknown liquid and left for 30 minutes. The cylinders were removed, blotted dry, and measured. The results are shown in the table below.

Cylinder	Initial length (cm)	Final length (cm)
1	5.0	5.4
2	5.0	5.5
3	5.0	5.5
4	5.0	5.6

15. The process responsible for the change in length of the cylinders is

- (A) diffusion
- (B) osmosis
- (C) mass flow
- (D) active transport

16. The unknown liquid is MOST likely

- (A) alcohol
- (B) sugar solution
- (C) salt solution
- (D) pure water

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Items **17 – 18** refer to the following information.

Students conducted an experiment to place materials into the categories of metals and non-metals. The results are shown below.

Material	Conducts heat	Ductile	Dull	Soft	Conducts electricity
I	√	√	x	x	√
II	x	x	√	√	x
III	√	x	x	√	√
IV	x	x	√	x	x

17. Which of the following are MOST likely metals?

- (A) I and II
- (B) I and III
- (C) II and III
- (D) III and IV

18. Which of the following may be used as insulators?

- (A) I and II
- (B) I and III
- (C) II and III
- (D) II and IV

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Items **19 – 20** refer to the information below.

Rashid conducted an experiment to determine the pH of several household chemicals. The results are shown below.

	Material	pH
I	Vinegar	5
II	Lemon juice	6
III	Table salt	7
IV	Sodium bicarbonate	10
V	Toothpaste	11

- 19.** Which materials in the table above are acidic?
- (A) I and II
(B) I and V
(C) II and III
(D) IV and V
- 20.** Your friend is stung by a bee at school. Which material in the table could be used to treat the bee sting?
- (A) I
(B) II
(C) III
(D) V
- 21.** Groups of specialized tissues carrying out a specific task are collectively referred to as
- (A) a cell
(B) an organ
(C) a system
(D) an organism
- 22.** Food production in plant cells takes place in the
- (A) nucleus
(B) vacuole
(C) chloroplast
(D) mitochondria

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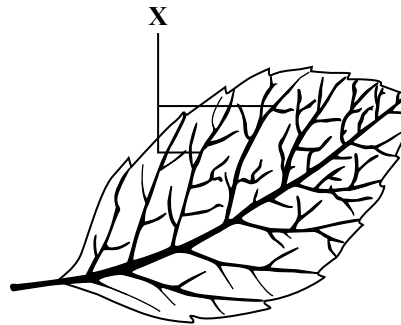
23. Some advertising signs contain light which makes them more visible and attractive. Which of the following gases produces this light?

- (A) Neon
- (B) Argon
- (C) Helium
- (D) Hydrogen

24. Which of the following soil types will have poor drainage properties?

- I. Sandy soil
 - II. Clay soil
 - III. Loam soil
- (A) I only
 - (B) II only
 - (C) I and II only
 - (D) I and III only

Item 25 refers to the following diagram of a leaf.

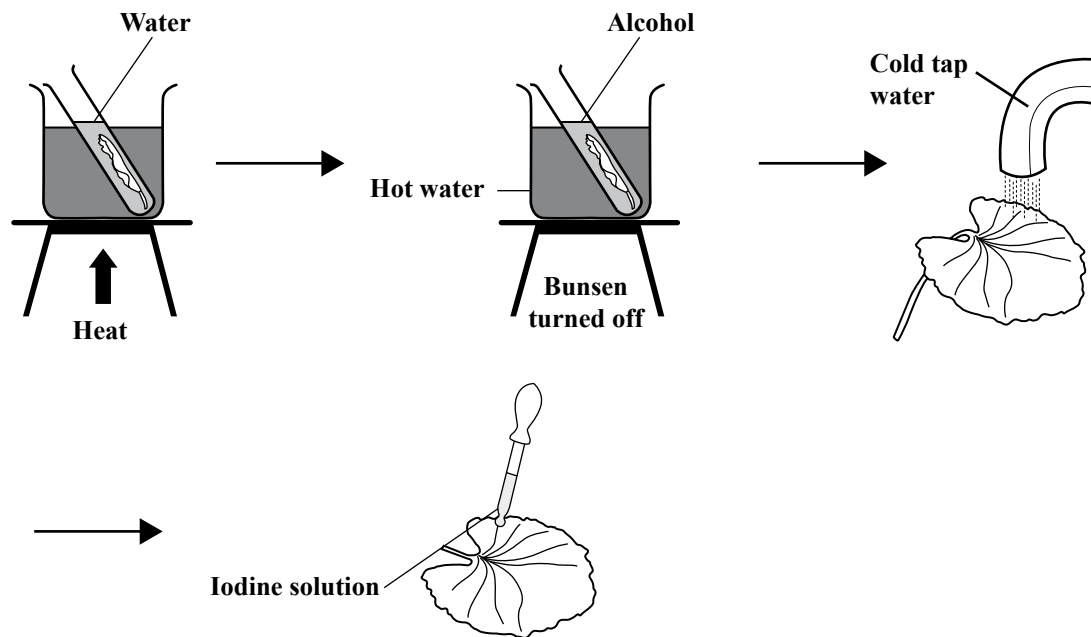


25. The part labelled X is the

- (A) vein
- (B) stalk
- (C) lamina
- (D) midrib

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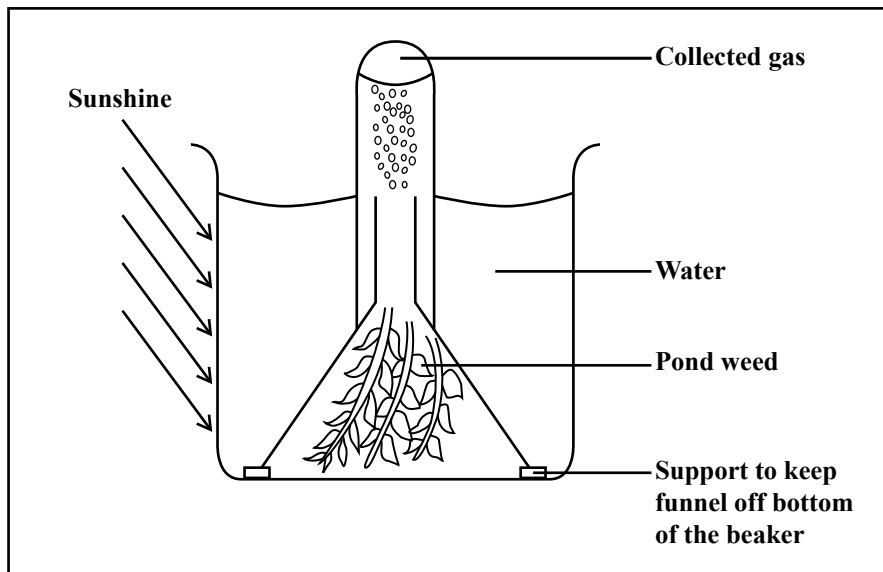
Items **26 – 27** refer to the following laboratory experiment.



26. The purpose of the experiment is to test the leaf for
- (A) starch
 - (B) oxygen
 - (C) chlorophyll
 - (D) carbon dioxide
27. A positive test is shown by the changing of the iodine solution from brown to
- (A) yellow
 - (B) purple
 - (C) blue-black
 - (D) orange-red

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Items **28 - 29** refer to the diagram below which shows an experiment that was set up by a class.



28. The process that the class is investigating is

- (A) digestion
- (B) excretion
- (C) respiration
- (D) photosynthesis

29. The gas collected in this experiment is

- (A) oxygen
- (B) nitrogen
- (C) hydrogen
- (D) carbon dioxide

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30. A student conducted an experiment to find the best method for removing an insect pest from four small ponds which appear to be equally infested with the pest. He treated each pond in one of four different ways and then checked for the level of infestation. The results are shown in the table below.

Method	Number of live pests
Draining of water	8
Insecticide	10
Fish-eating larvae	25
Oil on the surface	15

Which method of pest control seemed MOST effective in getting rid of the pest?

- (A) Biological
- (B) Chemical
- (C) Barrier
- (D) Physical

Items 31 - 32 refer to the following types of diseases.

- (A) Inherited
- (B) Infectious
- (C) Nutritional
- (D) Physiological

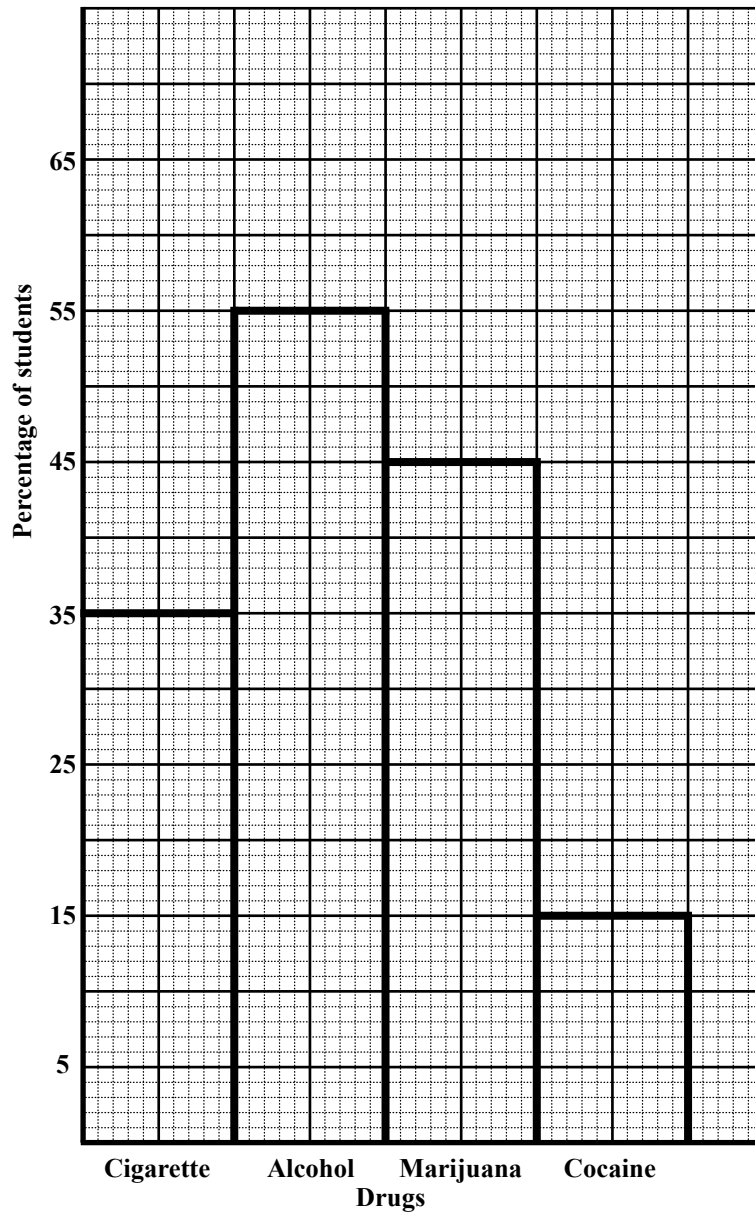
31. To which of the above types of diseases does diabetes belong?
32. To which of the above types of diseases does haemophilia belong?
33. Which of the following blood groups is that of the 'universal recipient'?
- (A) A
 - (B) B
 - (C) AB
 - (D) O
34. Which of the following components of blood transports oxygen?
- (A) Plasma
 - (B) Platelet
 - (C) Red blood cell
 - (D) White blood cell

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- 35.** A married couple does not want to have any children during the first two years of marriage. They belong to a religious community that promotes only natural contraceptive methods. The method that the couple should use to remain true to its religious conviction is
- (A) rhythm
 - (B) barrier
 - (C) hormonal
 - (D) sterilization
- 36.** Which of the following medical screening examinations is regarded as necessary to test for good reproductive health in a female?
- (A) Dental
 - (B) Vision
 - (C) Prostate
 - (D) PAP smear

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Items 37 - 38 refer to the graph below which shows the results of a substance abuse survey conducted at a Caribbean school.



37. Which of the following substances is used MOST by the students?

- (A) Marijuana
- (B) Cocaine
- (C) Cigarette
- (D) Alcohol

38. What percentage of students abuse cigarettes?

- (A) 15
- (B) 25
- (C) 35
- (D) 45

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Items **39 - 40** refer to the table below which shows the food groups from which the components of four different meals are taken.

	Staples	Fats	Fruits	Vegetables	Food from Animals
I	√				√
II			√	√	√
III		√			√
IV	√	√			√

39. Which meal will most likely be **HIGHEST** in vitamins and minerals?

- (A) I
- (B) II
- (C) III
- (D) IV

40. Which meal would be **LEAST** beneficial for a diabetic?

- (A) I
- (B) II
- (C) III
- (D) IV

41. The form of energy present in a stretched rubber band is

- (A) kinetic
- (B) sound
- (C) chemical
- (D) potential

42. Clothes are hung on a line to dry using heat from the sun. The process by which the heat is transferred from the sun to the clothes is

- (A) radiation
- (B) conduction
- (C) convection
- (D) evaporation

43. Which of the following is a **NON-RENEWABLE** energy source?

- (A) Coal
- (B) Wind
- (C) Water
- (D) Biogas

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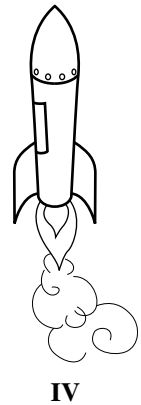
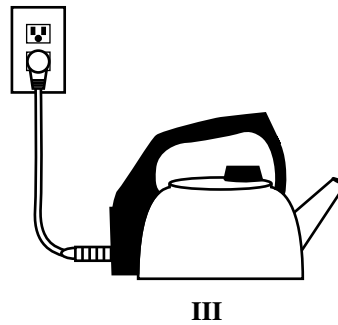
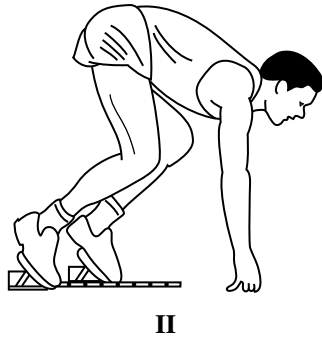
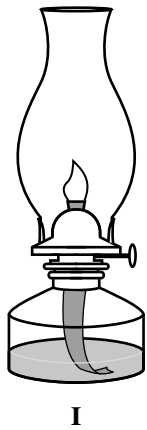
44. Which of the following situations demonstrates the 'at-a-distance' type of force?

- (A) Turning the crank on a generator to get it started
- (B) Water running over a paddle to produce electricity
- (C) Tyres on a plane making contact with the runway when landing
- (D) Hairs on the hand sticking out when passing close to the television

45. Heat from a flame may be transferred to the handle of a frying pan by

- (A) evaporation
- (B) radiation
- (C) conduction
- (D) convection

Items 46 – 47 refer to the following diagrams which show some energy changes taking place.



46. Which diagram shows the conversion from electrical energy to heat energy?

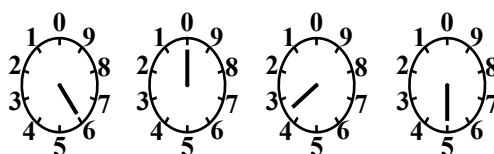
- (A) I
- (B) II
- (C) III
- (D) IV

47. Which diagram shows the conversion from potential energy to kinetic energy?

- (A) I
- (B) II
- (C) III
- (D) IV

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Items **48 – 49** refer to the following diagram which shows the electricity meter of a home.



- 48.** The meter reading in kilowatts for the home is
- (A) 5035
 - (B) 5144
 - (C) 6035
 - (D) 6946
- 49.** The home uses 1 519 kW of electricity in June. If the electricity company charges a rate of 20 cents per kilowatt, what is the cost of electricity for this home for the month of June?
- (A) \$ 3.04
 - (B) \$ 30.38
 - (C) \$ 303.80
 - (D) \$ 3038.00
- 50.** Which of the following should NOT be done when dealing with electricity and electrical power mains?
- (A) Wear rubber-soled boots.
 - (B) Have wet hands while working.
 - (C) Make sure the main switch is turned off.
 - (D) Use the recommended tools for repairs.

END OF TEST

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN CERTIFICATE OF SECONDARY LEVEL COMPETENCE

INTEGRATED SCIENCE

SPECIMEN PAPER 2011

Question No.	Syllabus Objective	Key	Skill
1	1.A.3	C	RC
2	1.B.7	C	RC
3	1.C.13	B	MM
4	1.C.13	B	MM
5	1.C.13	A	MM
6	1.C.13	A	MM
7	1.C.12	C	MM
8	1.A.6	B	PD
9	1.A.6	A	AI
10	1.A.6	D	AI
11	2.C.16	D	RC
12	2.B.8	A	RC
13	2.B.10	D	RC
14	2.C.13	B	RC
15	2.A.4	B	AI
16	2.A.4	D	AI
17	2.D.17	B	AI
18	2.D.18	D	AI
19	2.E.21	A	AI
20	2.E.21	D	AI
21	3.A.6	B	RC
22	3.A.4	C	RC
23	3.C.18	A	RC
24	3.E.26	B	RC
25	3.B.10	A	RC

Question No.	Syllabus Objective	Key	Skill
26	3.B.11	A	AI
27	3.B.11	C	AI
28	3.B.11	D	AI
29	3.B.11	A	AI
30	3.D.24	D	AI
31	4.C.11	D	RC
32	4.C.11	A	RC
33	4.E.22	C	RC
34	4.E.18	C	RC
35	4.A.6	A	AI
36	4.A.7	D	AI
37	4.B.10	D	AI
38	4.B.10	C	AI
39	4.D.14	B	AI
40	4.D.14	D	AI
41	5.A.3	D	RC
42	5.C.6	A	RC
43	5.C.7	A	RC
44	5.E.21	D	RC
45	5.D.13	C	RC
46	5.B.4	C	AI
47	5.B.4	B	AI
48	5.D.18	C	AI
49	5.D.19	C	AI
50	5.D.14	B	AI

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INTEGRATED SCIENCE

Specimen Paper and Key