DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2013

FORM 1 INTEGRATED SCIENCE TIME: 1h 30min

Name: ___________________________ Class: _______________

ANSWER ALL QUESTIONS

1. Matthew found some apparatus in the science laboratory. This apparatus is shown below.

   ![Apparatus Diagram]

   a. Write the letter which shows the following apparatus. 2 marks

   funnel: _____   conical flask: _____

   b. Match the correct measuring instrument used to measure each of the following.

   1. stopwatch:  500g of flour are needed to make a cake
   2. metre ruler: It takes 17 seconds to write your address
   3. balance: The pencil is about 15cm long

   3 marks

   c. Matthew used this apparatus to heat a salt solution in the laboratory.

      (i) Which measuring instrument will Matthew use to find the

           temperature of water? ____________________________ 1 mark

      (ii) What is the boiling point of pure water? ____________ 1 mark
2. a. In the laboratory there is fire fighting equipment. Circle TWO examples from the pictures below.

2 marks

b. Some chemical bottles have hazard symbols on them. What do the following symbols mean?

2 marks

c. Burning is a chemical reaction. What is the scientific name for burning?

1 mark

d. Use the fire triangle to describe a safe way of putting out a fire. Identify the thing which is being removed. Draw lines between the columns to show the correct links.

<table>
<thead>
<tr>
<th>Fire</th>
<th>How to put it out</th>
<th>What is removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A burning house</td>
<td>Fire fighter pours water</td>
<td>fuel</td>
</tr>
<tr>
<td>Burning oil</td>
<td>Pouring foam</td>
<td>heat</td>
</tr>
<tr>
<td>Short circuit</td>
<td>Turning off electricity</td>
<td>oxygen</td>
</tr>
</tbody>
</table>

3 marks
3. This question is about living things.

a. D is the odd one out. Give a reason for this.

______________________________________________________________________

1 mark

b. Joseph is reading a book about living and non-living things. He learned that living things carry out the 7 vital functions. Name the vital function shown by each picture below.

______________________________________________________________________

3 marks

c. The picture below shows a mammoth. This is a large and extinct mammal.

(i) Explain the word ‘extinct’.

______________________________________________________________________

1 mark

(ii) How can you tell from the picture that the mammoth is a mammal?

______________________________________________________________________

1 mark

(iii) Name the habitat where mammoths used to live.

______________________________________________________________________

1 mark
d. Scientists divide animals into two groups. Use these pictures to answer the following questions.

(i) State one characteristic common to all these animals.

________________________________________________________________________________________________________

1 mark

(ii) The lion is a carnivore. Write TWO characteristics which make the lion a good predator.

• __________________________________________________________

• __________________________________________________________

2 marks

4. The diagram shows the three states of matter – solid, liquid and gas. The arrows show the changes that happen when substances change state by heating up or cooling down.

a. Use the words in the box below to label the changes in the boxes above the arrows. The first one has been done for you.

| melting | freezing | condensing | boiling |

Solid | Liquid | Gas

Solid | Liquid | Gas

Boiling

3 marks
b. The picture below shows a glass of cold drink. Water droplets form on the outside of the glass.

Describe how this water forms.

____________________________________________________________________________

____________________________________________________________________________

2 marks

c. Robert had 3 mystery parcels. He could easily squash parcel A and make it smaller. He couldn’t squash parcel B into a smaller space but its shape changed all the time. He couldn’t squash parcel C or change its shape no matter how hard he tried.

(i) Which of the parcels A, B, or C contained a gas? ________________ 1 mark

(ii) Use the particle model to explain your answer.

____________________________________________________________________________

____________________________________________________________________________

5 marks

5. Fill in the blanks by using some of the words below. Some words may be used once, more than once or not at all.

<table>
<thead>
<tr>
<th>heat</th>
<th>Joules</th>
<th>Watts</th>
<th>sound</th>
<th>solar</th>
<th>movement</th>
<th>stores</th>
</tr>
</thead>
</table>

Energy is measured in _________________. Food and fuel are both _________________ of energy. Food in our body is changed into _________________ energy to keep us warm and to movement energy whenever we move. Fuel in a moving car is changed to _________________ energy, sound energy and also _________________ energy.

5 marks
6. For each of the objects shown in the table below, write down their energy input and the main energy outputs. The first one has been done for you.

<table>
<thead>
<tr>
<th>Input Energy</th>
<th>Object</th>
<th>Output Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical</td>
<td>Torchlight</td>
<td>Light</td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>photovoltaic cell</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Magnesium burns very brightly and then it leaves a white powder afterwards.
   
   a. Say whether these sentences are TRUE or FALSE
      
      (i) Magnesium burns with a bright white flame.  
      __________
      
      (ii) During burning, magnesium turns into a liquid.  
      __________
      
      (iii) This is a reversible change.  
      __________

3 marks
b. Underline the things that show that when magnesium burns, a chemical reaction takes place.

- Magnesium is grey
- A bright light comes out
- A white powder forms

2 marks

c. When magnesium burns, it joins with oxygen and forms magnesium oxide which is a white powder.

(i) Where does oxygen come from? ___________________________ 1 mark

(ii) Complete this word equation.

Magnesium + oxygen → ___________________________ 1 mark

8. The pH scale shows how strong an acid or an alkali is.

a. Underline ONE object used to find the pH number of a liquid.

litmus paper          filter paper           universal indicator         iodine

1 mark

b. Complete this table. The first one has been done for you.

<table>
<thead>
<tr>
<th>pH number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH 5</td>
<td>a weak acid</td>
</tr>
<tr>
<td>pH 9</td>
<td></td>
</tr>
<tr>
<td>pH 7</td>
<td></td>
</tr>
<tr>
<td>pH 2</td>
<td></td>
</tr>
</tbody>
</table>

3 marks
c. A student added some hydrochloric acid to baking powder. Bubbles came out immediately. At the end, there was no more baking powder left but only a clear liquid. This liquid had a pH 7.

(i) What shows that a chemical reaction took place?

_________________________________________________________ 1 mark

(ii) Hydrochloric acid has a pH 2, baking powder has a pH 9 and the liquid produced has a pH 7. What is this reaction called?

__________________________________________________________ 1 mark

(iii) Give an everyday example of this type of reaction.

__________________________________________________________ 1 mark

9. The diagram below shows Nicola on rollerblades being dragged to the right by Robert.

![Diagram of Nicola on rollerblades being dragged by Robert]

a. Which type of force, a pulling or a pushing force, must Robert apply to move Nicola forward? ____________________________ 1 mark

b. Name the instrument Robert can use to measure this force. ____________________________ 1 mark

c. What are the names of the forces labelled C and D?

Force C: ____________________________ Force D: ____________________________ 2 marks

d. Write the letters of the two forces that are equal when Nicola moves at constant speed.

__________________________________________________________ 1 mark
e. When she lets go of the rope, she continues to move a short distance and then stops. She notices that while stopping a hissing sound was coming from the wheels of the roller blades.

Name the force that may be causing this sound. ____________________________

1 mark

10. Look at these two circuits and answer the following questions.

a. Circuit A will not work. Why?

____________________________________________________________________

____________________________________________________________________

1 mark

b. In the space below, draw the circuit diagram of the wiring shown in diagram B.

3 marks
c. Look at this circuit and answer the following questions

(i) What is the name of components S1 and S2 in the circuit diagram above?

__________________________________________________________ 1 mark

(ii) Are the lamps connected in series or in parallel?

__________________________________________________________ 1 mark

(iii) Give ONE advantage of having lamps connected this way.

__________________________________________________________ 1 mark

(iv) In the table below tick (✓) the lamp that will light when the components S1 and S2 are open or closed.

<table>
<thead>
<tr>
<th>S1 closed and S2 open</th>
<th>Lamp A is ON</th>
<th>Lamp B is ON</th>
</tr>
</thead>
</table>

1 mark

(v) When component S1 and S2 are replaced by a wooden spoon, lamps A and B will not light. Why?

__________________________________________________________ 1 mark
11. This question is about cells. This diagram shows a typical cell.

a. Is this an animal or a plant cell? ___________________________ 1 mark

b. Name the parts labelled A, B and C. 3 marks

A: ___________________________
B: ___________________________
C: ___________________________

c. Why is the nucleus important in the cell?

_____________________________ 1 mark

d. These diagrams shows two cells. Name these cells.

Cell (i): ______________________  Cell (ii): ______________________

2 marks
12. This question is about reproduction in humans.

a. The diagram shows a baby growing inside the mother’s body.

Which part:

(i) Can stretch as the baby grows? ________________________

(ii) Cushions and protects the baby from damage? ________________________

2 marks

b. Complete the following sentences. Each word can be used once, more than once or not at all.

<table>
<thead>
<tr>
<th>male</th>
<th>fertilisation</th>
<th>female</th>
<th>nine</th>
<th>smoke</th>
<th>five</th>
<th>tail</th>
<th>head</th>
</tr>
</thead>
</table>

Sperms are produced in the ________________________ body and eggs are produced in the ________________________ body. The sperm has a ________________________ to swim to the egg. When egg and sperm meet, ________________________ takes place. The baby takes ________________________ months to develop. Pregnant women are advised not to ________________________ as this can harm their baby.

6 marks