**Candidate’s Name: ………………………………………………………… Assessment Number: …………………………………………**

**School Name: ……………………………………………………………………. School Code: …………………………………………………………**

**Candidate’s Signature: ………………………………..…………….Date: …………………………………………………….…………….**

**COMPETENCE BASED EDUCATION**

**KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT**

**705/2** **INTEGRATED SCIENCE (Practical)**

**TERM 2, 2025**

**PAPER 2**

**JUNE 2025**

**TIME: 1 hour 30 minutes**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and assessment number in the spaces provided above.
2. Write the name and code of your school in the spaces provided above.
3. Sign and write the date of the assessment in the spaces provided above.
4. This paper consists of 2 questions.
5. Answer **BOTH** questions in the spaces provided on this **QUESTION PAPER**.
6. Do **NOT** remove any page from this question paper.
7. Answer the questions in English.

**For official use only**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum Score** | **Candidate's Score** |
| 1 | 20 |  |
| 2 | 10 |  |
| **Total** | **30** |  |

This paper consists of 4 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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**QUESTION ONE**

You are provided with a mixture containing sand, iron filings, and maize grains (or beans). You are also provided with a magnet, a sieve, and two empty containers. You are required to separate the mixture into its individual components.

a) Examine the mixture provided. List the three components present in the mixture. **(3 marks)**

Component 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Component 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Component 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) Describe, step-by-step, how you will separate the mixture into its three components using the provided apparatus. Explain the method you use at each step. **(10 marks)**

Step 1:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Method used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explanation:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Step 2:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Method used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explanation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Step 3:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Method used:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explanation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

c) After separating the mixture, name the three pure components you have obtained in the empty containers. **(3 marks)**

Container 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Container 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Container 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) Name three laboratory apparatus necessary for this practical, other than the empty containers. **(3 marks)**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

e) State one safety precaution you observed during this practical. **(1 mark)**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**QUESTION TWO**

You are provided with a measuring cylinder, water, and a rectangular wooden block. You are also provided with a ruler. You are required to measure a specific volume of water and determine the volume of the wooden block.

a) Measure and pour exactly 60 cm3 of water into the measuring cylinder. b) Read the volume of water from the measuring cylinder. Ensure you read from the bottom of the meniscus.

Volume of water in cylinder: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm3. **(1 mark)**

c) Name the unit of volume indicated on the measuring cylinder.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**(1 mark)**

d) Use the ruler to measure the dimensions of the rectangular wooden block: Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm.

Width: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm.

Height: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm. **(3 marks)**

e) Calculate the volume of the rectangular wooden block.

(Volume = Length × Width × Height) Show your working.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Volume of wooden block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm3. **(2 marks)**

f) Name two laboratory instruments necessary for this practical.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**(2 marks)**

g) State one safety precaution you should take when handling the measuring cylinder and water.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1 mark)**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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**ANSWERS**

**QUESTION ONE (20 marks)**

You are provided with a mixture containing sand, iron filings, and maize grains (or beans). You are also provided with a magnet, a sieve, and two empty containers. You are required to separate the mixture into its individual components.

**(a)** Examine the mixture provided. List the three components present in the mixture. (3 marks)

**Component 1:** Sand

**Component 2:** Iron filings

**Component 3:** Maize grains (or beans)

**(b)** Describe, step-by-step, how you will separate the mixture into its three components using the provided apparatus. Explain the method you use at each step. (10 marks)

**Step 1:** Carefully bring the magnet close to the mixture and move it around.

**Method used:** Magnetic separation

**Explanation:** Iron filings are magnetic and will be attracted to the magnet, allowing them to be lifted and separated from the non-magnetic sand and maize grains.

**Step 2:** Pour the remaining mixture (sand and maize grains/beans) into the sieve placed over one of the empty containers. Gently shake the sieve.

**Method used:** Sieving

**Explanation:** The sieve has openings of a specific size. The smaller particles (sand) will pass through the mesh and collect in the container below, while the larger particles (maize grains/beans) will be retained on the sieve.

**Step 3:** The component remaining on the sieve is the maize grains (or beans).

**Method used:** Physical sorting (or manual separation, as it's already isolated)

**Explanation:** After sieving, the maize grains (or beans) are now separated and can be collected from the sieve into the remaining empty container.

**(c)** After separating the mixture, name the three pure components you have obtained in the empty containers. (3 marks)

**Container 1:** Iron filings

**Container 2:** Sand

**Container 3:** Maize grains (or beans)

**(d)** Name three laboratory apparatus necessary for this practical, other than the empty containers. (3 marks)

Magnet

Sieve

Beaker (or any container to hold the initial mixture)

**(e)** State one safety precaution you observed during this practical. (1 mark)

Handle the magnet with care to avoid pinching fingers.

**QUESTION TWO (10 marks)**

You are provided with a measuring cylinder, water, and a rectangular wooden block. You are also provided with a ruler. You are required to measure a specific volume of water and determine the volume of the wooden block.

**(a)** Measure and pour exactly 60 cm³ of water into the measuring cylinder.

**(b)** Read the volume of water from the measuring cylinder. Ensure you read from the bottom of the meniscus.

**Volume of water in cylinder:** 60 cm³ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm³. (1 mark)

**(c)** Name the unit of volume indicated on the measuring cylinder. (1 mark)

Cubic centimetre (cm³)

**(d)** Use the ruler to measure the dimensions of the rectangular wooden block: (3 marks)

**Length:** \_\_\_\_\_\_\_\_\_\_\_ cm. **Width:** \_\_\_\_\_\_\_\_\_\_\_ cm. **Height:** \_\_\_\_\_\_\_\_\_\_\_ cm.

*(Note: Candidates will fill in the actual measurements they take here.)*

**(e)** Calculate the volume of the rectangular wooden block. (Volume = Length × Width × Height) Show your working. (2 marks)

Working: Length (cm) × Width (cm) × Height (cm) = Volume (cm³)

**Volume of wooden block:** \_\_\_\_\_\_\_\_\_\_\_ cm³. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm³.

*(Note: Candidates will fill in their calculated volume here.)*

**(f)** Name two laboratory instruments necessary for this practical. (2 marks)

Measuring cylinder

Ruler

**(g)** State one safety precaution you should take when handling the measuring cylinder and water. (1 mark)

Handle the measuring cylinder carefully to avoid breakage.

Avoid spilling water to prevent slips.

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