



**ZIMBABWE SCHOOL EXAMINATIONS COUNCIL**  
**General Certificate of Education Advanced Level**

**AGRICULTURAL ENGINEERING**

**6048/3**

**SPECIMEN PAPER**

Time: 2 hours 30 minutes

Additional materials:

Answer paper,

Graph paper,

As listed in Instructions to Supervisors,

Scientific Calculator.

**TIME** 2 hours 30 minutes + 10 minutes preparation time.

**INSTRUCTIONS TO CANDIDATES**

Write your name, centre number and candidate number in the spaces at the top of this page and on every page of your answer paper.

This paper consists of **three** questions. Answer **all** questions. The number of marks is given in brackets [ ] at the end of each question or part question.

You are advised to spend the first **10** minutes carefully reading through the whole paper before answering any questions. Spend at least **40** minutes on each question. All writing must be in blue or black ink except for diagrams which must be drawn in pencil.

You are reminded of the need for good English and clear presentation in your answers.

FOR EXAMINER'S USE	
<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>TOTAL</b>	

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**This question paper consists of 6 printed pages and 2 blank pages.**

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- 1** You are provided with **50cm<sup>3</sup>** of soil samples **AE1**, **AE2** and **AE3**.

Proceed as follows:

Put sample **AE1** in a filter fitted funnel,

Place the funnel over a measuring cylinder,

Pour **50ml** of distilled water into **AE1** and record the time taken for the water to start to drip to the bottom of the container.

Repeat the procedure with **AE2** and **AE3**.

- (i) Record the time taken for water to start dripping and the volume of water collected after drainage has stopped in each sample.

Soil Sample	Time taken before water starts dripping (seconds)	Volume of water collected (ml)
<b>AE1</b>		
<b>AE2</b>		
<b>AE3</b>		

[6]

- (ii) Identify soil samples

**AE1** \_\_\_\_\_

**AE2** \_\_\_\_\_

**AE3** \_\_\_\_\_

[3]

- (iii) Explain the differences in drainage rates of the **three** samples.

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[3]

- (iv) Calculate the water holding capacity of each soil sample.

[6]

- (v) Describe how soil sample **AE1** can be improved for better crop production.

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[2]

- 2** You are provided with a component of the electrical system of vehicles labelled **AE4** and a multimeter.

- (a) (i) Identify **AE4**.

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[1]

- (ii) Use a multimeter to measure the voltage and current of **AE4**.

Clearly indicate every stage of the testing procedure.

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[5]

- (iii) Comment on the results of your test.

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[2]

- (iv) State any **three** routine maintenance practices of **AE4**.

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[3]

- (b) (i) State any **three** functions of **AE4**.

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[3]

- (ii) Describe how the features of **AE4** relate to their functions.

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[6]

**3** You are presented with some elements of the electrical system of a vehicle.

**(a) (i)** Identify the parts labelled:

**AE5**

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**AE6**

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**AE7**

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**AE8**

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**AE9**

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[5]

**(ii)** What function is performed by these labelled parts?

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[1]

**(iii)** Name any **two** additional components which are missing from this system.

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[2]

**(iv)** State the functions of each of the following parts labelled

**AE5,** \_\_\_\_\_

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[2]

**AE6,**\_\_\_\_\_

[1]

**AE7.**\_\_\_\_\_

[1]

- (b) Describe the structure and function of the whole component labelled **AE9**.

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