ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Advanced Level

AGRICULTURAL ENGINEERING 6048/3

SPECIMEN PAPER

Time: 2hours 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	
1	
2	
3	
TOTAL	

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

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1 You are provided with **50cm^3** 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)
AE1		
AE2		
AE3		

[6]

(ii) Identify soil samples

AE1 _____

AE2 _____

AE3 _____ [3]

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

_____

_____

_____

_____ [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.

_____

_____

_____ [2]

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

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

_____

_____ [1]

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

Clearly indicate every stage of the testing procedure.

_____

_____

_____

_____

_____

_____ [5]

(iii) Comment on the results of your test.

_____

_____

_____ [2]

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

_____

_____

_____ [3]

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

_____

_____

_____

_____ [3]

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

_____

_____

_____

_____

_____

_____ [6]

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

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

AE5

_____

_____

AE6

_____

_____

AE7

_____

_____

AE8

_____

_____

AE9

_____

_____ [5]

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

_____

_____ [1]

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

_____

_____ [2]

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

AE5, _____

_____ [2]

AE6,_____

_____ [1]

AE7._____

_____ [1]

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

_____

_____

_____

_____

_____

_____

_____

_____

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