ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

METAL TECHNOLOGY AND DESIGN 4055/3

PAPER 3 Design Practical

SPECIMEN PAPER

No additional materials are required.

INSTRUCTIONS TO CANDIDATES

Attempt **one** option only.

This specimen paper consists of 4 printed pages.

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GENERAL NOTES

When candidates are working on these projects, the application of electronics, IT and mechanical mechanisms is central to the effective solving of Design problems in line with the updated Metal Technology and Design Syllabus.

NB: Candidates are allowed and encouraged to produce a scaled down version of their design when realising the artefact. They are also encouraged, where possible and relevant, to combine different materials e.g. metal and wood or plastic, in realizing their designs, provided the predominant material remains metal.

Candidates should choose one option only and produce:-

(i) a detailed **A3** Design Folio showing the development of the design process from the situation through to the final drawings of the solutions. The final section of the folio should include the evaluation.

(ii) a well constructed scaled mock-up of the chosen solution in any suitable material.

(iii) a well constructed artefact of the chosen solution.

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1 Machine Work

Option 1

Small scale farmers who are into crop farming usually face problems of loading their grain into trucks in readiness for the market. They normally load the grain bags manually which is time consuming, laborious and strenuous.

Design and make a scaled down unit which can be used to load bags into trucks. The unit should be:

- Capable of loading at least 50kg bags into different types of trucks.
- Durable.
- Mobile and easy to operate.
- Manually or electronically operated.

*Y our design should incorporate at least three machine work processes.

2 Sheet Metal technology and Welding

Option 2

An AIDS awareness team requires a stand that holds a TV, decoder and an array of teaching materials like pointing sticks, chalk, highlighting pens and CDs which should be accessible and carefully shelved.

Design and make a unit that can be used for holding the above accessories. The unit should be:

- Collapsible
- Dismantled and assembled easily
- Portable
- Durable
- Attractive

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3 Forge Technology

Option 3

Due to persistent burglary at your school, the school authorities have decided to tighten the security at the library.

Design and make a unit/device to be fitted by the library entrance. The device should:

- Reduce easy access or scare intruders
- Be easy to operate
- Be durable
- Incorporate three forgework processes

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