ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Advanced Level

DESIGN AND TECHNOLOGY **6005/3**
PAPER 3 Design Project

SPECIMEN PAPER **3 TERMS**

Additional materials:
A3 drawing paper

TIME **3 Terms**

INSTRUCTIONS TO CANDIDATES

Attempt **one** option only.

This question paper consists of 4 printed pages.

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General Notes

Teachers refer to the sections of the syllabus explaining the Design Project, for guidance.

Candidates are expected to formulate a project brief from the given theme. The project is to be done in a period of one year, under the supervision of the teacher.

Candidates should choose one option and produce:

- a detailed **A3** Design Folio showing the Development of the Design Process from situation through to plans for solutions. The costing and final evaluation of the project should appear in the folio.

- Freehand sketches of components and of ideas conceived and developed are a pre-requisite. CAD or other computer application packages may be used.

- A well constructed scaled mock-up / model of the developed solution.

- A well constructed prototype.

Production of the prototype should be preceded by the following (where possible):

- Testing materials,
- Use of jigs and templates,
- Consider patenting processes,
- Quality control measures and
- Evaluation process.

NB: Candidates are advised to combine different materials preferably wood, metal, plastics and ceramics

Attempt One Option Only

OPTION A (100 marks)

A Chief Executive Officer has a problem with his sitting position as he needs to adjust horizontally and vertically in order to perform his/her tasks efficiently.

Design and make a seat to be used by the Officer.

The design should incorporate, among other things, the following:

- bearings,
- lubrication,
- seals,
- shafts,
- wheels.

The complete project should include:

(i) complete assembled drawings, at least **three** views, which should include an end view, a front view and a plan,

(ii) a sectional view as one of the **three** views in **(i)** above, to show internal details of operational features such as shafts, bearings and lubrication,

(iii) a pictorial impression of the design.

OPTION B (100 marks)

Huge trees between buildings result in blocked gutters due to leaves accumulating on building tops. Unsystematic cutting down of branches causes damages to roof tiles and other roofing materials.

Design and make a facility for gripping branches as they are being cut and brought down to the ground.

The design should incorporate the following among other items/ components:

- bearings,
- lubrication,
- seals,
- shafts,
- gears,
- pulleys.

The complete project should include:

(i) complete assembled drawings showing at least **three** views that should include an end view, a front view and a plan,

(ii) in one of the above three views in **(i),** a sectional view to show internal details of operational features like gears, shafts, bearings and lubrication,

(iii) fully dimensioned features and a detailed parts list,

(iv) a pictorial impression of the design.