JUNIOR SECONDARY CERTIFICATE

DESIGN AND TECHNOLOGY 1808/2

PAPER 2 45 minutes

Marks 30 **2017**

Additional Materials: A3 drawing paper
Standard drawing equipment

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Write your centre number, candidate number and name in the spaces on all answer paper used.
- Use a pencil for diagrams, graphs or rough working.
- Do not use correction fluid.

- Answer **one** question on the separate A3 drawing paper provided.
- At the end of the examination fasten your A3 work together before handing it in.

- The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **4** printed pages.

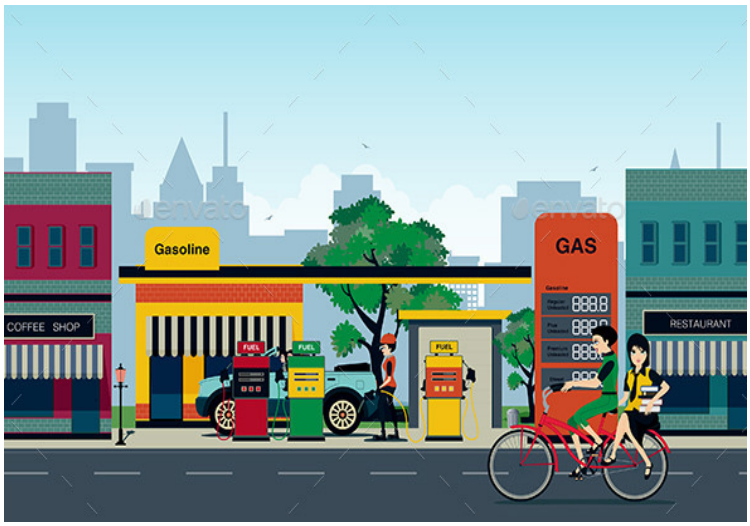
Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

[Turn over

1 Design Communication

The new owner of an Engen outlet, Sammy's Service Station (SSS), started a promotional campaign to attract more customers.



SSS is located alongside the main road between Usakos and Swakopmund and provides the following traditional services: fuel, lubricants, mechanic services, a car-wash. SSS also provides additional services: a convenience store (Q-Shop), bakery (Corner Bakery) and an ATM (automatic teller machine).

You are to design a trailer mounted display unit for the promotion of the service station. The trailer will be parked alongside the main road at a convenient distance from SSS.

The trailer mounted display should

- clearly promote the service station
- give directions to its location
- contain images and text to draw public attention to **three traditional services**
- contain images and text to draw public attention to **two additional services**

(a) (i) State **one** additional important specification for the display unit. [1]

(ii) Give a reason why the specification in **(a)(i)** is important. [2]

(b) (i) Use sketches and notes to propose **two** ideas of possible designs for the display. [6]

(ii) Select **one** of the ideas to be developed into a final design.

Give a reason for your choice. [2]

(c) Using a suitable method, draw a presentation of your final design. Your drawing should show the major design detail, clear graphics and the main dimensions. [12]

(d) Use a flow chart to show **three** procedures required to make one of the signs [5]

(e) Describe a test to determine if the completed signs satisfy the specification stated in **(a)(i)**. [2]

[30]

2 Resistant Materials

Trailer mounted advertisement display units may be unsafe and unstable if not properly designed. A strong wind could easily blow it over or it could be towed away dishonestly.

One way of anchoring the unit is to use concrete blocks. It is, however, not very effective.

You are required to design a suitable device that will anchor and stabilise the unit.

The device should

- be fitted to the chassis of the trailer as a semi-permanent member
- ensure easy anchoring and dismantling at the spot of display
- ensure that the unit is properly anchored so that it will not be easily blown over
- safeguard the unit from being towed away dishonestly.

(a) (i) State **one** additional important specification for such a device. [1]

(ii) Give **one** reason why the specification in **(a)(i)** is important. [2]

(b) (i) Use sketches and notes to propose **two** ideas of such a device. [6]

(ii) Select **one** idea from **(b)(i)** for your final design.

Give a reason for your choice. [2]

(c) Using a suitable method, draw a presentation of your final design. Your drawing should show the major design detail and the main dimensions. [13]

(d) (i) List **one** suitable material for your design. [1]

(ii) Describe why the material in **(d)(i)** is suitable for your design. [2]

(e) Describe a test to determine if the completed design satisfies the specification stated in **(a)(i)**. [3]

[30]

3 Technology

Advertisements are much more attractive and eye catching when some form of sequenced flickering coloured lights are part of the display unit.

You are required to design a suitable system that will create some form of sequenced flickering coloured lights as part of the display unit.

The system should

- include a switching circuit that will allow the coloured lights to operate only when it is dark
- include a switching circuit that will automatically vary the frequency of the flickering periods for the lights
- be powered by a battery pack that is recharged through a solar panel
- be suitably constructed to operate outdoors.

(a) **(i)** State **one** additional specification for such a system. [1]

(ii) Give a reason why the specification in **(a)(i)** is important. [2]

(b) **(i)** Suggest **two** ideas for such a system. [2]

(ii) Describe how each of the systems operate. Use sketches and notes to aid the description. [6]

(c) Select **one** system from **(b)(i)** that could be produced. [1]

Give a reason for your choice. [2]

(d) Using a suitable method, draw a presentation of your final design. Show all important detail. [11]

(e) List a selection of tools needed to produce the device. [2]

(f) Describe a test to determine if the completed design satisfies the specification stated in **(a)(i)**. [3]

[30]