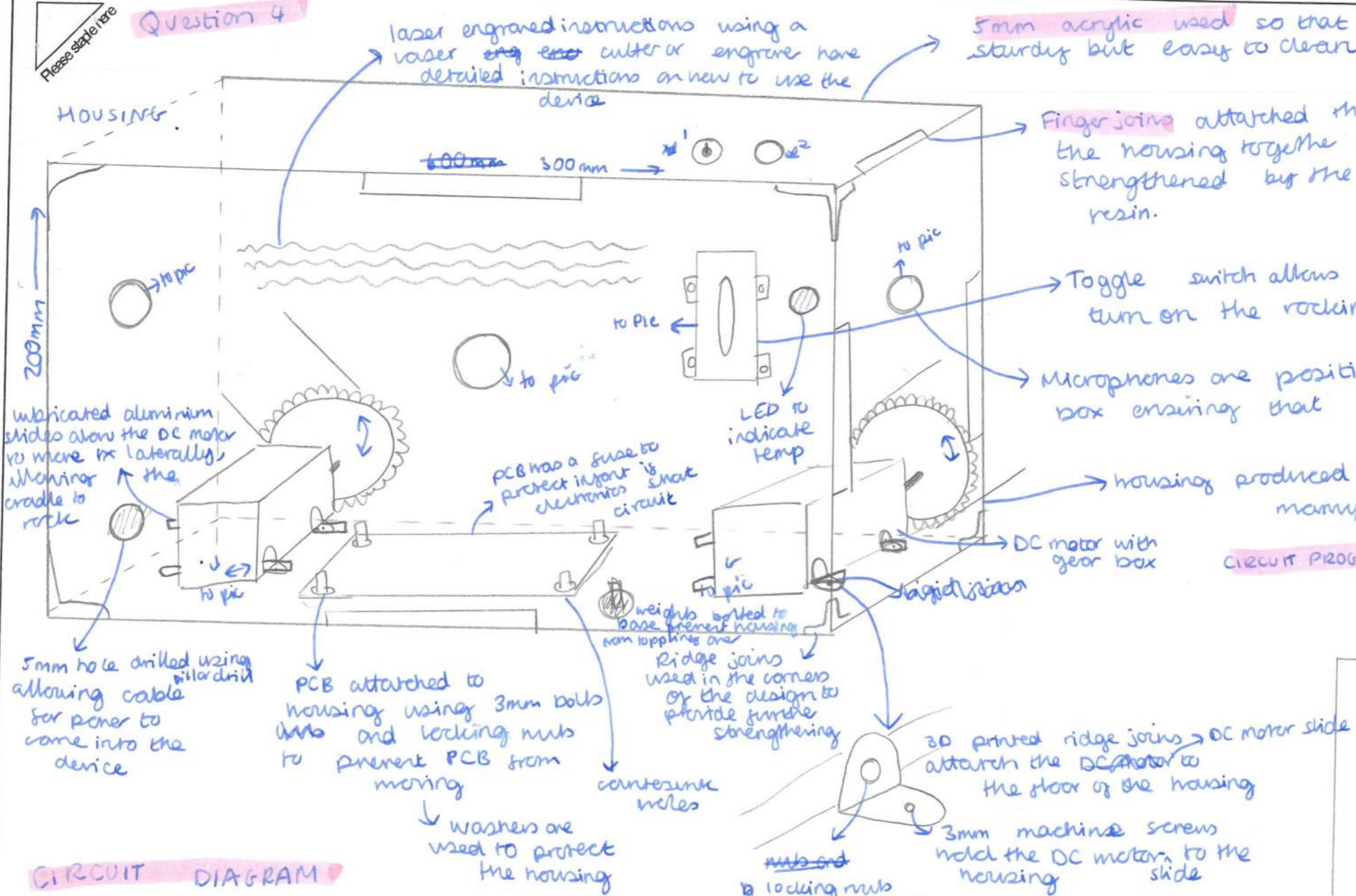
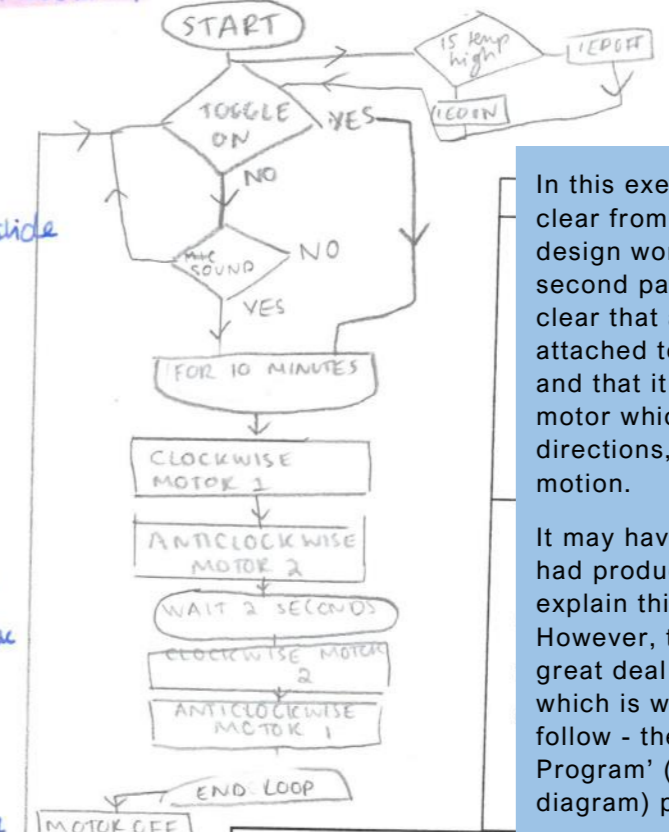


Please state rate

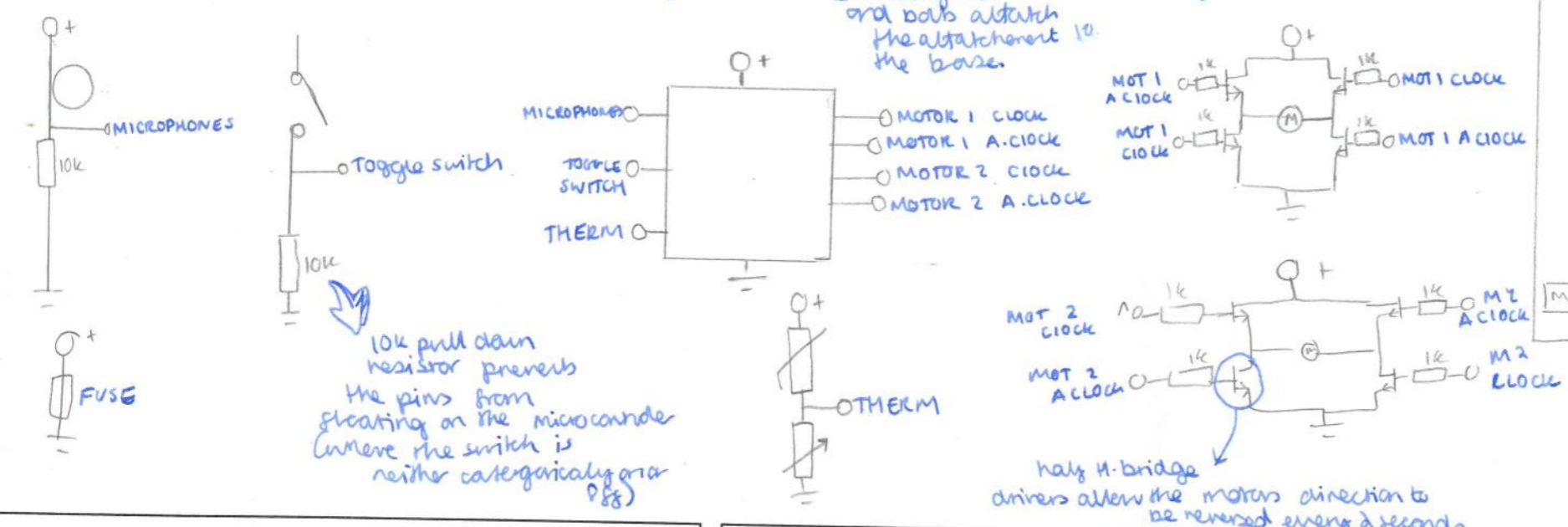
Question 4



CIRCUIT PROGRAM



CIRCUIT DIAGRAM



In this exemplar answer it is not clear from the first page how the design works. When reading the second page, however, it becomes clear that a gear (sprocket) is attached to the foot of the cradle and that it is chain driven by a DC motor which rotates in two directions, thus reversing the motion.

It may have helped if the candidate had produced a simple diagram to explain this in the first instance. However, the answer contains a great deal of technical information which is well explained and easy to follow - the inclusion of the 'Circuit Program' (in the form of a flow diagram) picks up valuable marks.

Marker's Comments: There are many references to both materials & components, and the method of construction, and the candidate gains top marks in the assessment of both of these areas.

Name: _____

School: _____

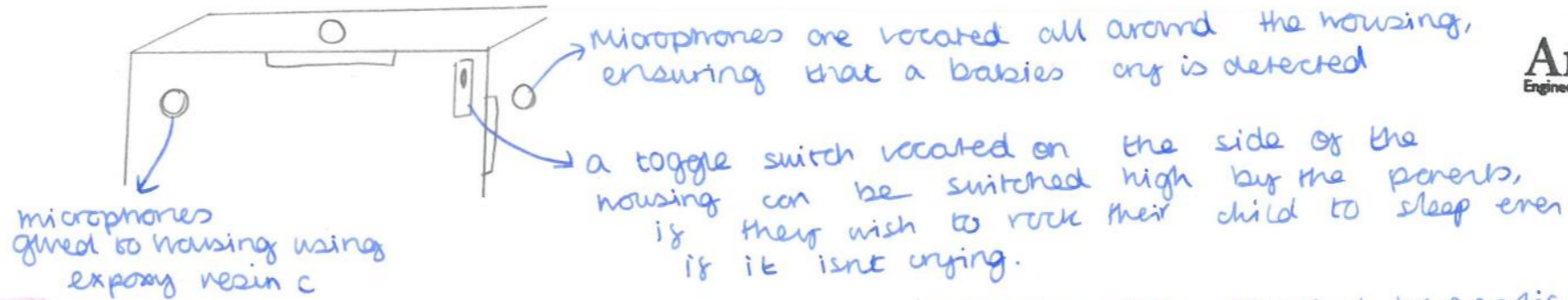
Section A or B: B

Question Number: 4

Page: 4 of 5

QUESTION 4

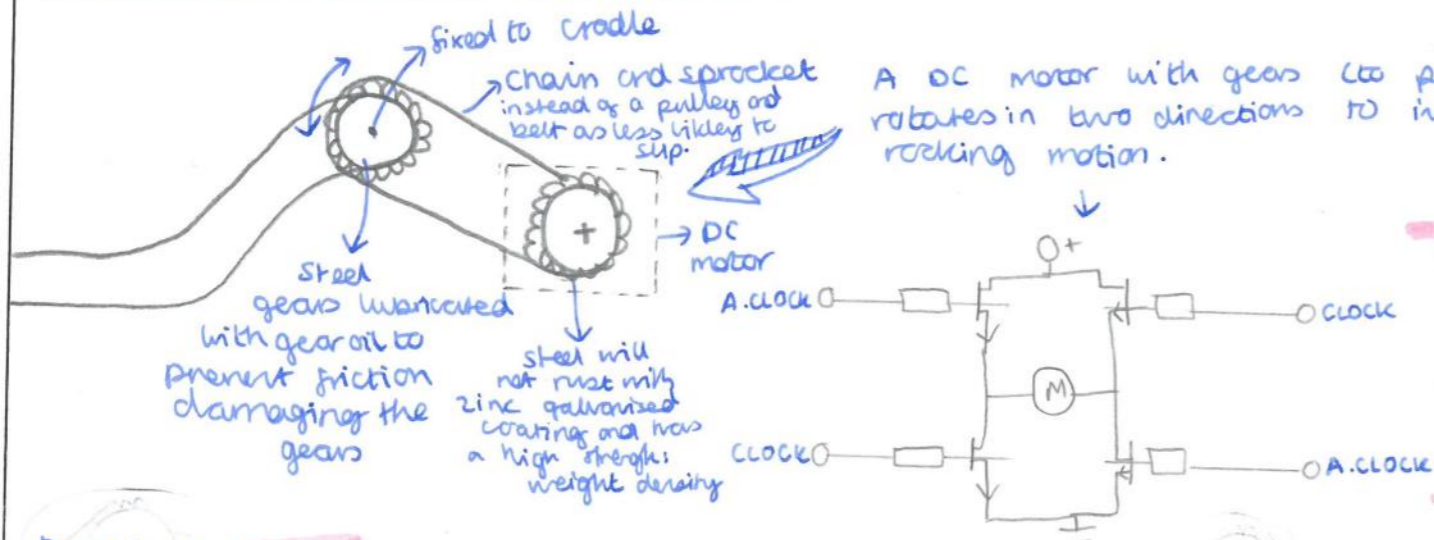
DETECTION OF INFANT



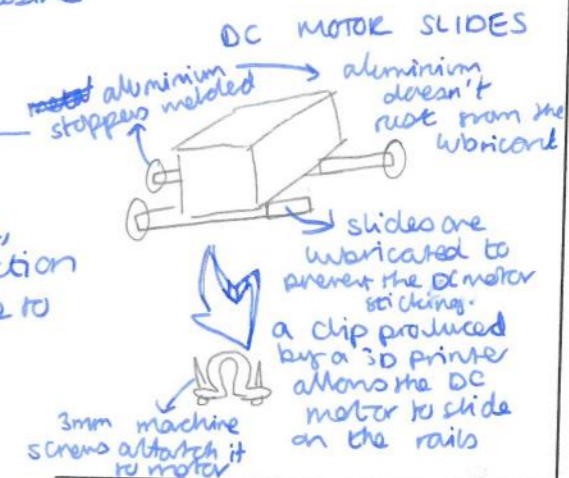
Toggle switch attached to acrylic housing using epoxy resin adhesive

INTERNAL MECHANISMS OF DEVICE

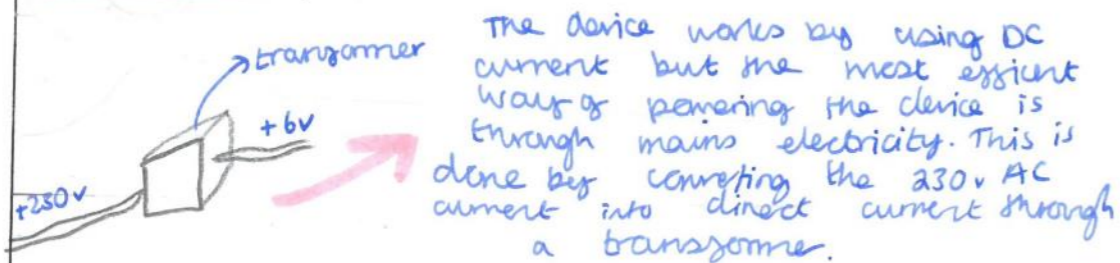
A DC motor with gears (to provide torque) rotates in two directions to initiate the rocking motion.



The DC motor spins for 2 second clockwise, then the half H-bridge changes the direction of the motor. This causes the cradle to rock back and forth in unison.



POWER SUPPLY



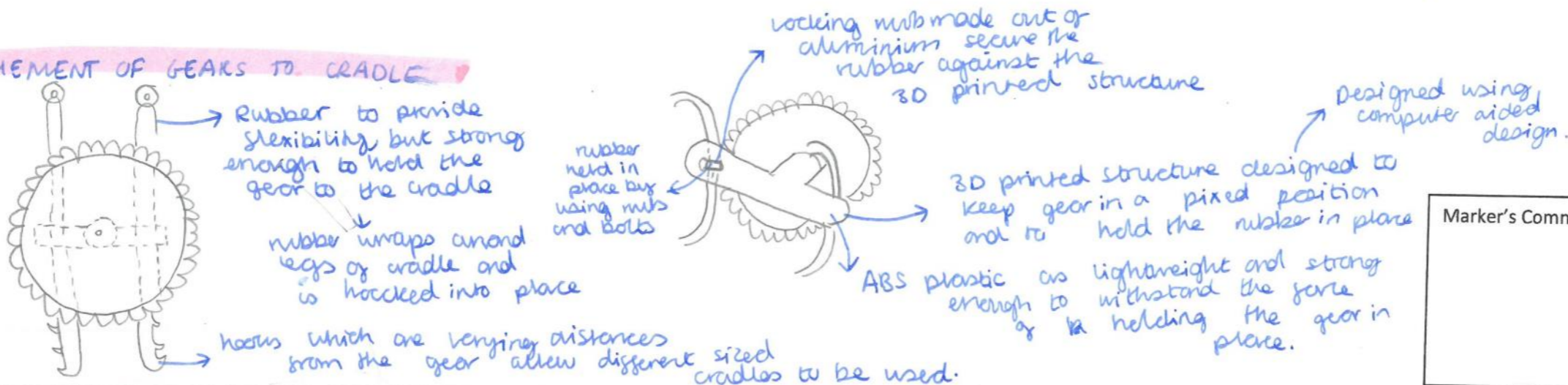
EXTRA FEATURES

Many parents also wish to regulate the temperature of the babies room, which can sometimes prevent a baby from sleeping.

→ A thermiste is used to sense the temperature of the room

→ The parent can set the temperature to what it when they wish to be informed

ATTACHMENT OF GEARS TO CRADLE



| For Examiner use only | | |
|-----------------------|--|------------|
| Section A | Quality of the 3 Concepts - Flair and Creativity | /30 |
| | Reasoning | /10 |
| | Technical knowledge | /10 |
| | Total for Section A | /50 |
| Section B | Functionality of Proposal | /30 |
| | Materials & Components | /10 |
| | Construction Method | /10 |
| | Total for Section B | /50 |
| Total | /100 | |

Marker's Comments:

Name: _____ School: _____

Section A or B: **B** Question Number: **4** Page: **5** of **5**