

Surname	Centre Number	Candidate Number
Other Names		2



GCE AS/A LEVEL – NEW

2603U10-1



**DESIGN AND TECHNOLOGY – AS unit 1
Product Design**

MONDAY, 13 MAY 2019 – AFTERNOON

2 hours

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	8	
2.	8	
3.	8	
4.	8	
5.	8	
6.	40	
Total	80	

ADDITIONAL MATERIALS

A calculator, ruler, pencil and coloured pencils.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Answer **ALL** questions.

Write your name, centre number and candidate number in the spaces at the top of this page.

Write your answers in the spaces provided in this booklet. If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question. You are advised to divide your time accordingly.

The total number of marks available is 80.

You are reminded of the need for good English and orderly, clear presentation in your answers. The quality of your written communication, including appropriate use of punctuation and grammar, will be assessed in your answer to question 5.

Answer all questions.

1. Study the photographs below of a popular pen, with reference to the pen lid. Answer the questions that follow.



- (a) The pen lid is manufactured by injection moulding. Give **two** reasons for using this process. [2]

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(b) Using notes and sketches describe the injection moulding process used to manufacture the pen lid. [6]

A large rectangular box for writing and sketching. The box is mostly empty, with a dotted line near the bottom edge. The dotted line is a single horizontal line that spans the width of the box, located approximately 10% above the bottom edge.

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2. Product designers have access to a vast range of both new and traditional materials.

(a) Explain the term 'composite material'.

[3]

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(b) The product pictured below utilises a composite material in the frame. State a possible composite material and explain in detail the reasons for its use.

[5]



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3. A storage unit is pictured below. This unit is part of a storage system sold both online and through retail outlets.



- (a) The storage system uses a broad range of bought-in components in its assembly. Explain **two** advantages of using bought-in components. [4]

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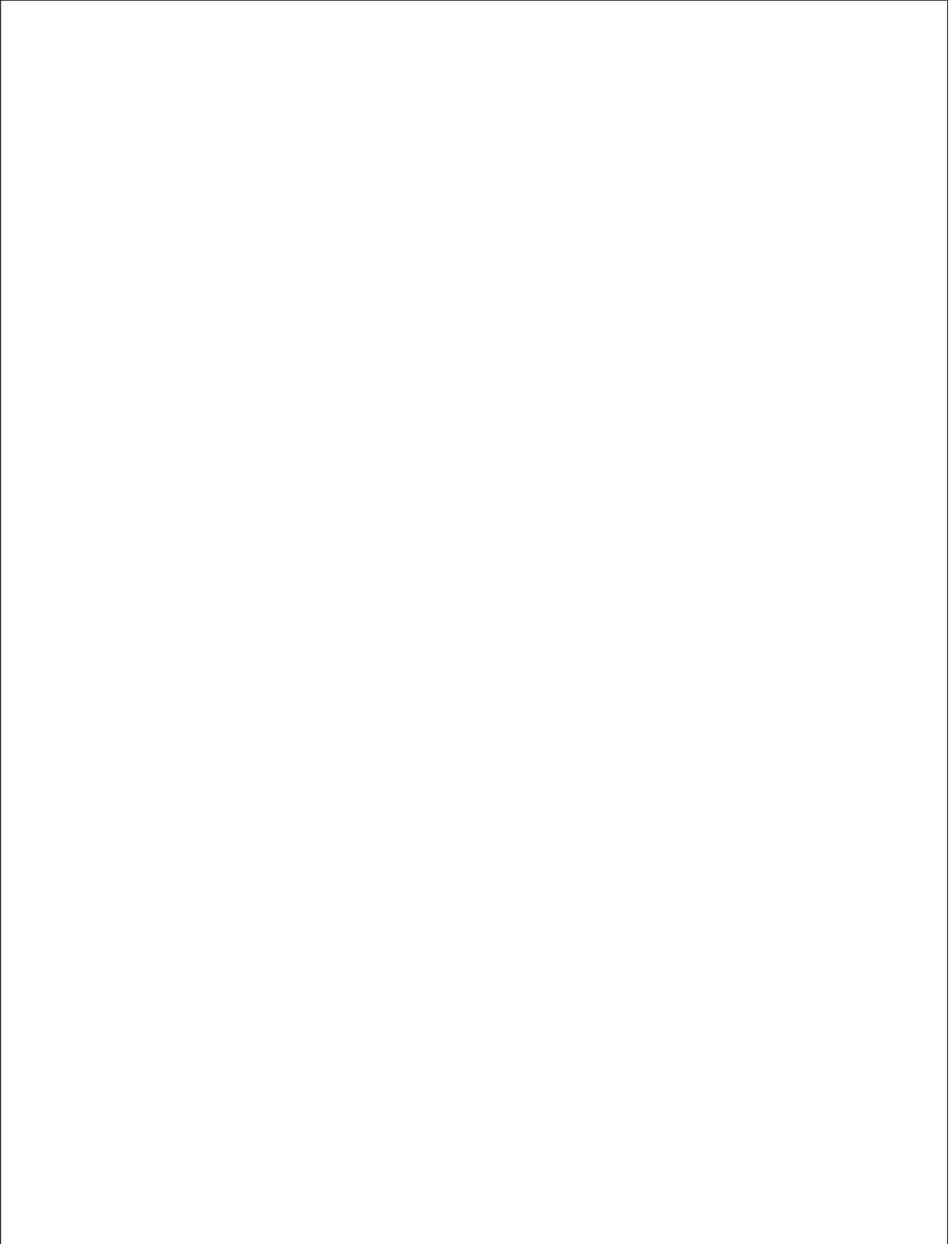
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- (b) Using notes and sketches describe an example of a semi-permanent fixing method that could be used to join the storage system together. [4]



4. Study the Scaoiattolo Squirrel Nutcracker below and answer the following questions.



Product Information
Cost: £75.00
Materials:
Squirrel handle. 18/10 mirror polished stainless steel
Base: Beech

(a) Evaluate the selection of **each** material used in the nutcracker. [4]

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(b) Evaluate the importance of applying appropriate surface finishes to the materials. [4]

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5. Many products achieve the status of a design classic.

Explain the meaning of the term 'design classic', and describe the key features of **one** named design classic. [8]

Marks will be awarded for the content of the answer and the quality of communication.

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6. "Bethan Gray has a bright future – she has an exquisite appreciation of the materials that she works with and a fine attention to detail."

Sir Terence Conran: *The Times* June 2012.



- (a) With reference to the statement above and the images shown, analyse how the work of Bethan Gray could influence you when designing and making new products. [8]

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(b) Taking inspiration from Bethan Gray's work design a Bluetooth music speaker.

Your design proposal must:

- reflect the work of Bethan Gray
- be no bigger than 100 mm × 100 mm × 200 mm
- be freestanding and stable when in use.

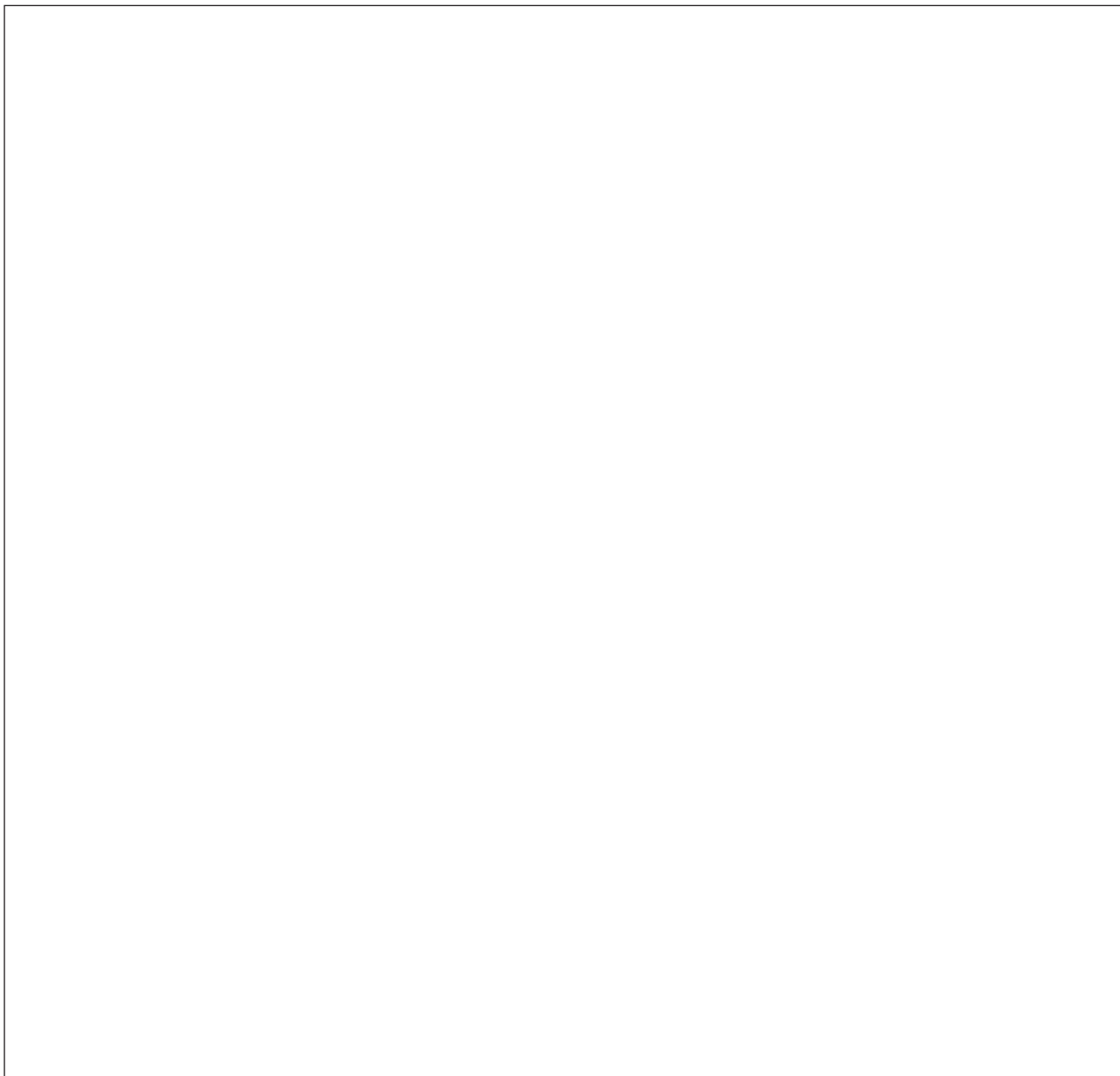
In the space below, use the specification points to produce a design proposal for the Bluetooth music speaker.

You are required to use a mixture of 2D and 3D freehand drawings.

Marks will be awarded for:

- An inspirational design that reflects the form, style and work of Bethan Gray. [8]
- Annotating your design to show how it meets the last two points in the proposal. [4]
- The quality/presentation and communication of your 2D/3D drawings. [4]

You are not expected to render, colour or shade your design work.



(c) If a prototype of your design was manufactured describe in detail:

(i) **One** physical test that you could perform to accurately assess impact damage. [4]

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(ii) How you could accurately assess the aesthetic qualities. [4]

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(d) Describe and justify a research strategy to gather relevant information on the internal workings of the Bluetooth speaker. [8]

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END OF PAPER

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