
Design & Manufacture

Homework Booklet

Mr McMenemy

Homework 1

Two bathroom accessory ranges are shown below.

Accessory Range A

Comprises waste bin,
Soap dispenser,
toothbrush holder,
tumbler and soap dish.
Manufactured from
frosted Acrylic.



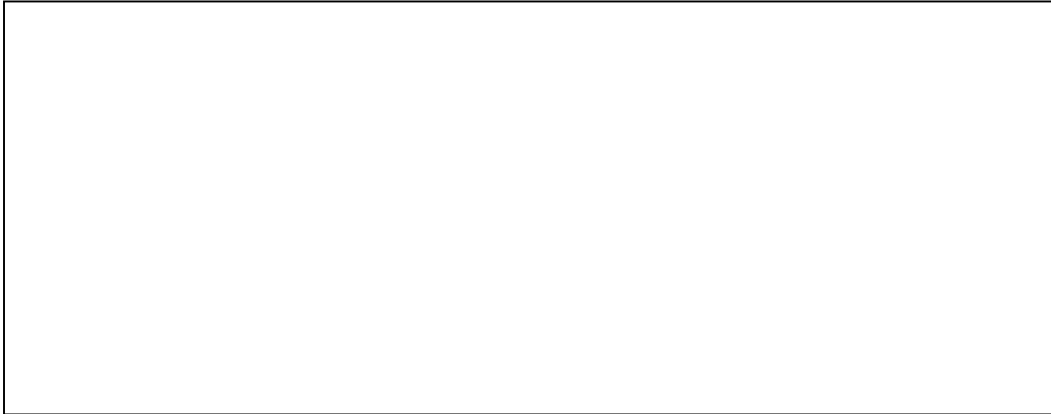
Accessory Range B

Comprises toilet roll holder, hand
towel ring, tumbler ring including
tumbler, robe hook and towel rail.
Manufactured from chrome plated
metal and glass.
Glass shelf sold separately
(Available in plain or frosted glass).



Answer the following questions using the information given;

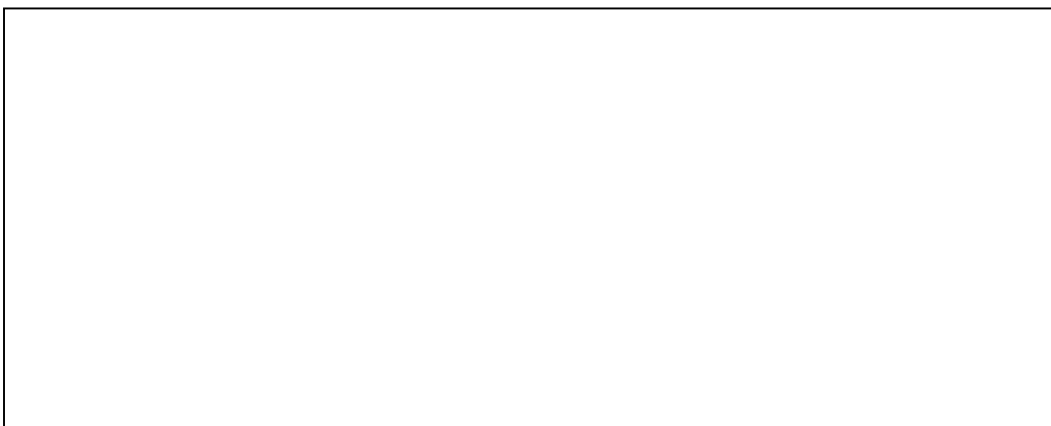
- 1) Explain how **both** bathroom accessory ranges have been influenced by function. 4 Marks

A large, empty rectangular box with a thin black border, intended for the student to write their answer to question 1.

- 2) Describe the appeal of **both** bathroom accessory ranges from the consumer's viewpoint. 4 Marks

A large, empty rectangular box with a thin black border, intended for the student to write their answer to question 2.

- 3) Describe the ergonomic issues associated with these types of products. 4 Marks

A large, empty rectangular box with a thin black border, intended for the student to write their answer to question 3.

Homework 2

Two condiment sets are shown below.

Condiment Set A

Price: £24.95

Material: Beech, also available in walnut.

Description: The manual twist mechanism for the pepper mill is crafted from solid, cutlery grade stainless steel to withstand the rigors of commercial use. The pepper mill is constructed with an internal spring tension system which allows it to be adjusted to mill very fine to coarse pepper.



Condiment Set B

Price: £55.00

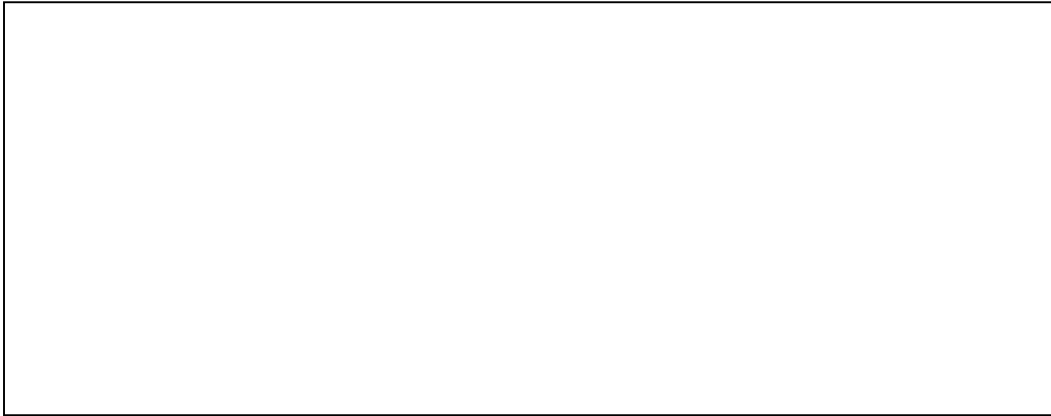
Material: Stainless steel with brushed finish.

Description: Designed for cooks who love gadgets. With a twist of the wrist, the electric mills lock into 6 pepper and 3 salt grind adjustments. The pepper mill features an original Peugeot case-hardened steel milling mechanism, while the salt mill contains a stainless steel mechanism that will not corrode from the salt. The acrylic section allows easy viewing of contents. A touch of a button activates the mill and its illuminating lamplight. Each use six AAA batteries.



Answer the following questions using the information given;

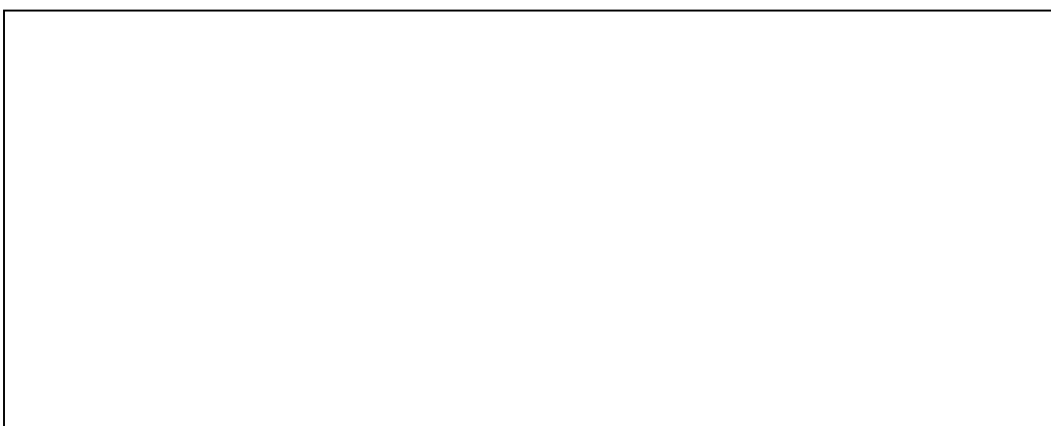
- 1) With reference to the condiment sets, explain how **both** designs have been influenced by function.

A large, empty rectangular box with a thin black border, intended for the student to write their answer to question 1.

- 2) Describe the aesthetic appeal of **both** condiment sets from a consumer's viewpoint. 4 Marks

A large, empty rectangular box with a thin black border, intended for the student to write their answer to question 2.

- 3) Describe the ergonomic issues associated with the use of the condiment sets. 4 Marks

A large, empty rectangular box with a thin black border, intended for the student to write their answer to question 3.

Homework 3

A cordless drill is shown below. During the development of the drill, the designer had to give careful consideration to ergonomics. Describe the ergonomic issues that are relevant for the product shown.

(6 Marks)

S



Anthropometrics

(2 Marks)

Physiology

(2 Marks)

Psychology

(2 Marks)

Homework 4

The components shown below have been manufactured by the process of Compression moulding.



Battery Housing



Smoke Alarm



Car Taillight

- (a) **Explain** why compression moulding is suitable for these types of product. (2)
- (b) **State** the name of a suitable material and explain why it is appropriate for the

manufacture of components.

(3)

Two kayaks are shown below.

Figure 1 is produced by a **Rotational Moulded Polyethylene (PE)**.



Figure 1

Figure 2 is produced by traditional methods using **Glass Fibre Reinforced Plastic (GFR)**.



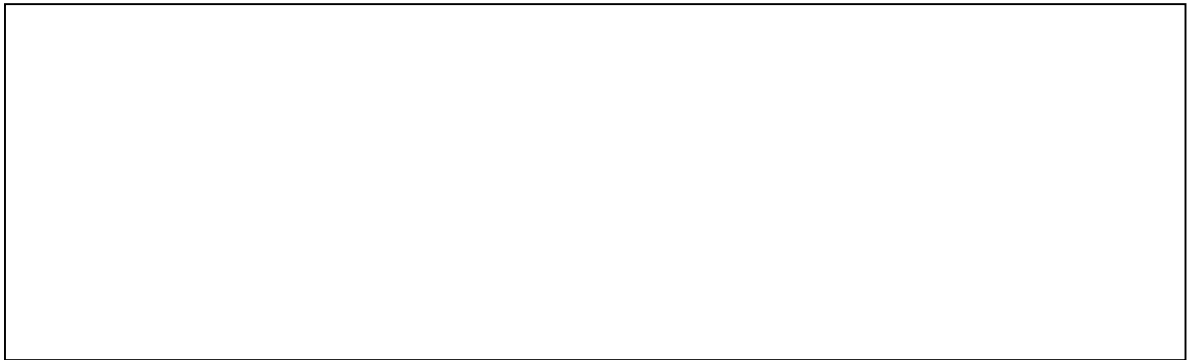
Figure 2

(c) **Explain** why each method of production is suitable for a product of this type. (4)

(d) Identify **two** manufacturing disadvantages of using rotational moulding for this product. (2)

Homework 4 (Cont'd)

(a)



(b)



(c)



(d)



Homework 5

The kitchen utensils shown below are manufactured from melamine with hardwood handles.



- (a) (i) State the name of the manufacturing process used to produce the Melamine heads of the utensils. (1)
- (ii) Explain why this process is suitable for the production of these parts of the product. (2)

This range of products comes with a variety of hardwood handles.

- (b) (i) State **two** valid reasons for using hardwood for the handles. (2)
- (ii) Explain the implications, for both the manufacturer and consumer, of using a range of hardwoods. (3)

The range of tableware shown below has been designed for **children aged between 1 and 3 years**



- (c) Explain how the designer would identify the needs of the user group before developing the product range. (2)
- (d) Explain how the following factors would influence the design of the accessories:
 - (i) function; (2)
 - (ii) material choice. (2)

Homework 5 (Cont'd)

Answers in the space provided: