OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

DESIGN & TECHNOLOGY
INDUSTRIAL TECHNOLOGY

1959/2

PAPER 2 Higher Tier
Thursday **25 MAY 2006** Morning 1 hours 15 minutes
Candidates answer on the question paper.
No additional materials are required.

Candidate Name

Centre Number

Candidate Number

TIME 1 hour 15 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and candidate number in the boxes above.
- Answer **all** questions.
- Write your answers in the spaces provided on the question paper.
- Use blue or black ink. Pencil may be used for diagrams only.
- Do not write in the bar code. Do not write in the grey area between the pages.
- **DO NOT** WRITE IN THE AREA **OUTSIDE** THE BOX BORDERING EACH PAGE. ANY WRITING IN THIS AREA WILL NOT BE MARKED.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each question or part question.
- All dimensions are in millimetres.
- Assume any mechanical system to be 100% efficient.

FOR EXAMINER'S USE	
1	
2	
3	
4	
5	
TOTAL	

This question paper consists of 13 printed pages and 3 blank pages.

[Turn over

1 A software designer is developing a new product for CNC machining.
Fig. 1 shows the tool bar symbols to describe the machining operations.

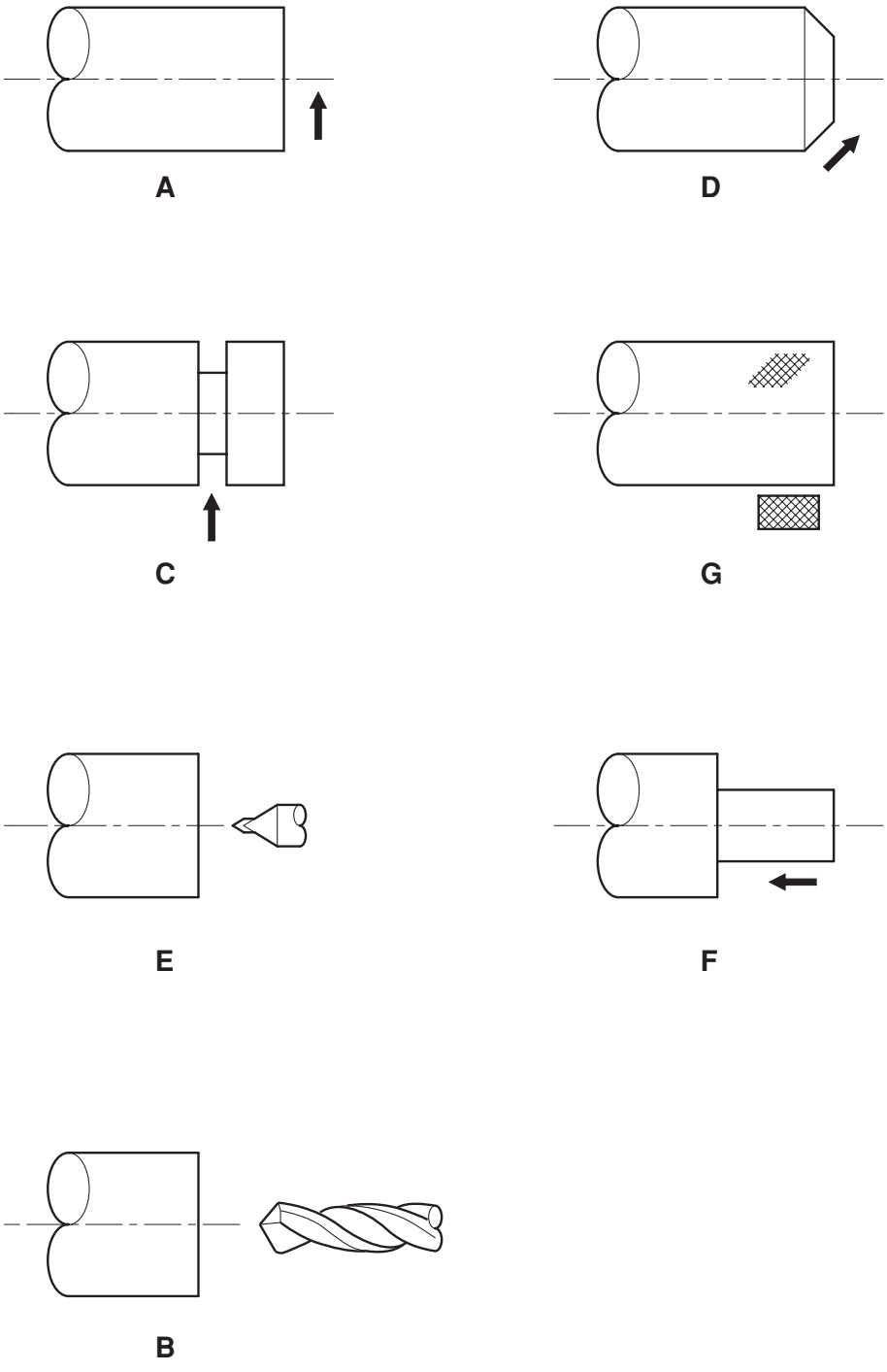
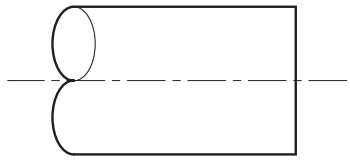
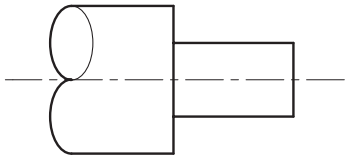
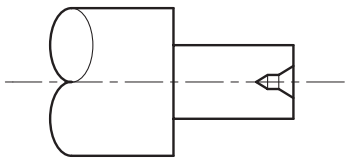
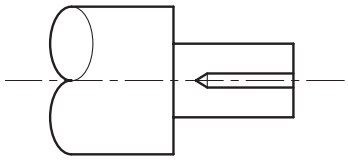
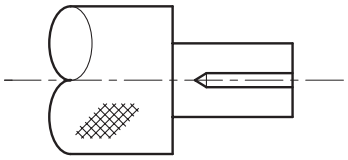
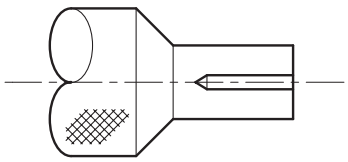
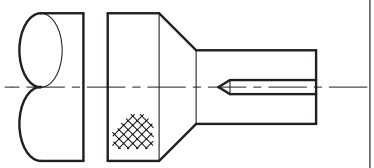


Fig. 1

(a) **Complete** the table below. The first one has been done for you.

Operation	Description	Tool bar symbol
	Facing off	A
	Parallel Turning	
		E
	Drilling	
		G
	Taper Turning	
		C

[6]

[Turn over

(b) Fig. 2 shows the label on a box of fastenings.

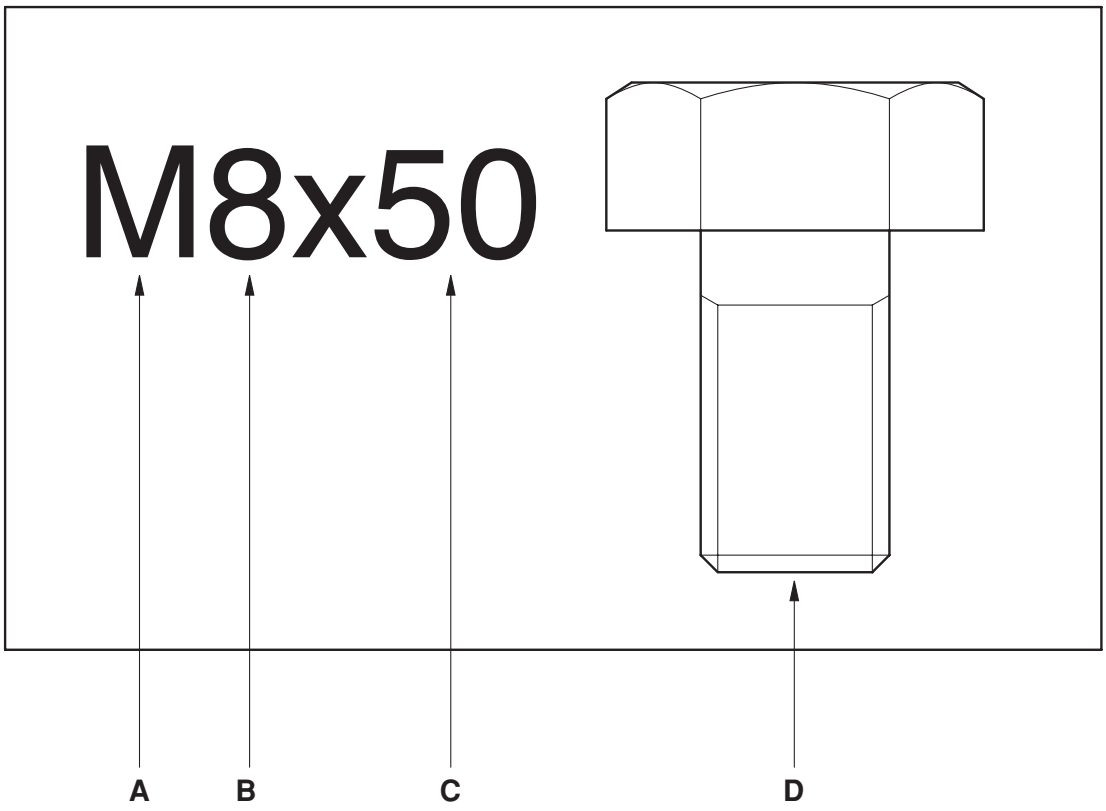


Fig. 2

State what each item of information means.

A _____

B _____

C _____

D _____[4]

[Total: 10]

2 Fig. 3 shows two buckets.

2 diagrams have been removed due to third party copyright restrictions

Details:

Diagrams of 2 different types of bucket

bucket A (polypropylene)

bucket B (mild steel)

Fig. 3

(a) (i) State a suitable method of manufacture for the body of bucket A.

_____[1]

(ii) State a suitable method of manufacture for the body of bucket B.

_____[1]

(b) State which of the buckets is likely to be the cheaper to mass produce.

_____[1]

(c) State a suitable finishing process for bucket B other than painting.

_____[1]

(d) State the reason for the shape of bucket B at point X.

_____[1]

(e) (i) Explain how the graduations are manufactured in bucket A.

_____[1]

(ii) Explain how the graduations are manufactured in bucket B.

_____[1]

In use, bucket **A** shown in Fig. 3 is found to be unsatisfactory.
The following weaknesses were identified:

- the bucket is unstable;
- the shape deforms when filled with water;
- over time the handle splits the plastic body.

(f) Use sketches and notes to show how these faults can be overcome.

[3]

[Total: 10]

3 Fig. 4 shows a design sketch of a working model that can be used as part of a shop window display.

A diagram has been removed due to third party copyright restrictions

Details:

A diagram of a mechanical shop window display

Fig. 4

(a) Name the type of motion shown by the arrows at points A, B and C.

A _____ [1]

B _____ [1]

C _____ [1]

(b) (i) Name the gear system shown at point X.

_____ [1]

(ii) Give one advantage of the gear system shown at X.

_____ [1]

Fig. 5 shows details of the support frame.

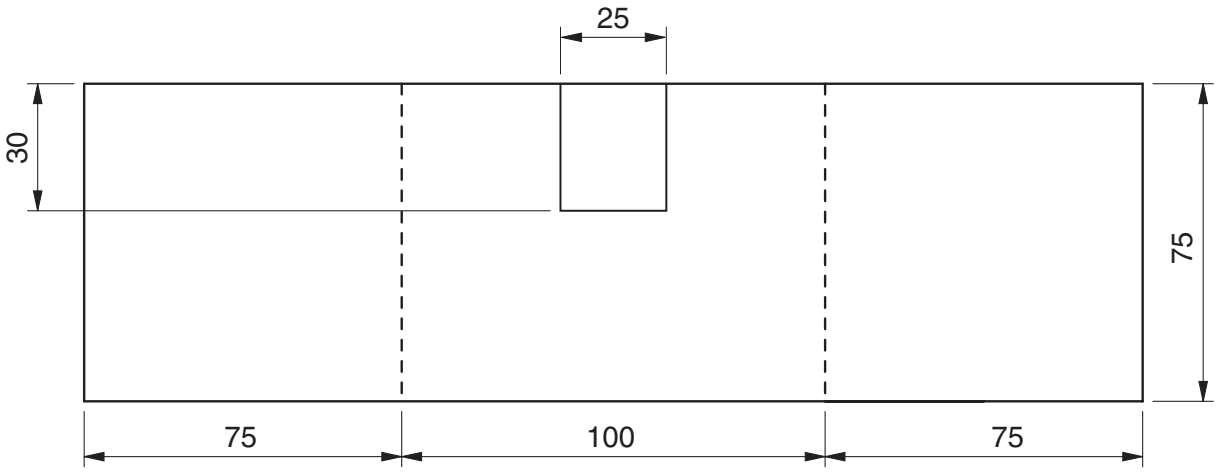


Fig. 5

(c) Using sketches and notes, design a bending jig that:

- will locate the metal blank securely;
- allows the three bends to be made accurately;
- can be held in an engineers vice.

Answer part **(c)**

[5]

[Total: 10]

[Turn over

4 Fig. 6 shows a view of an adjustable parasol.

Fig. 6

(a) Use sketches and notes to show how the collar **A**:

- can be made to slide up and down the post;
- be adjustable without the aid of tools;
- be made to lock securely.

[5]

(b) Use sketches and notes to show a suitable joining method for the two components at point **C**.

[5]

[Total: 10]

5 **(a)** Many companies are ISO 9000 registered. **Explain** what this means.

_____

_____

_____

_____

_____

_____[3]

(b) **Explain** the difference between Quality Control and Quality Assurance.

_____

_____

_____

_____[2]

(c) Cell production usually consists of a number of work stations grouped together to produce a single component.

Give **five** benefits of cell production.

1 _____

_____

2 _____

_____

3 _____

_____

4 _____

_____

5 _____

_____[5]

[Total: 10]

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