

**ADVANCED GCE****DESIGN AND TECHNOLOGY****2524/01**

Unit 7: Product Design 2

**Papers 2524/01 and 2524/02 should be available to candidates
for the full 2 hour 30 minutes examination session**

Candidates answer on the Answer Booklet

OCR Supplied Materials:

- 8 page Answer Booklet

Other Materials Required:

None

**Friday 25 June 2010
Morning**

Duration: 1 hour**INSTRUCTIONS TO CANDIDATES**

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the spaces provided on the Answer Booklet.
- Use black ink. Pencil may be used for graphs and diagrams only.
- **This paper is to be taken with 2524/02 in the same examination session of 2 hours 30 minutes.**
- Approximately 1 hour should be spent on this paper (Paper 2524/01).
- This paper (2524/01) contains **seven** questions.
- You are required to answer **two** questions.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Please note that the instruction 'discuss' denotes that you should:
 - identify **three** relevant issues/points raised by the question;
 - explain why you consider these issues to be relevant;
 - use **two** specific examples/evidence to support your answer.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper (2524/01) is **48**.
- All dimensions are in mm.
- This document consists of **8** pages. Any blank pages are indicated.

You are required to answer **two** questions.

Answer the questions in the separate answer booklet.

- 1 Fig. 1 shows a chair made from softwood.

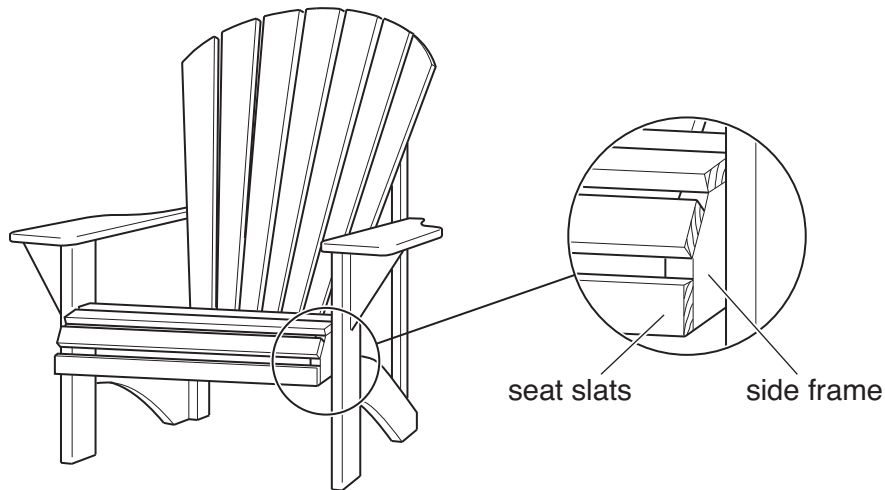


Fig. 1

- (a) (i) Name **two** specific softwoods that are suitable for the manufacture of the chair. [2]
- (ii) State **two** methods of attaching the seat slats of the seat to the side frame. [2]
- (iii) Describe **two** ways the chair has been strengthened by its design. Use sketches where appropriate. [4]
- (b) Describe how the side frames of the chair could be manufactured in quantity. Use sketches where appropriate. [8]
- (c) Discuss the issues involved in the use of softwood to produce furniture. [8]

[Total: 24]

2 Fig. 2 shows a die cast toy car.

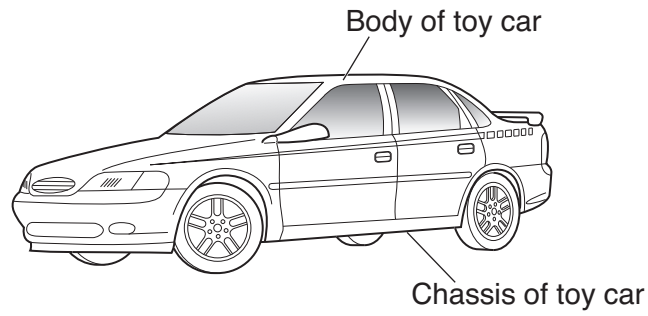


Fig. 2

- (a) (i) Name **two** alloys that are commonly used in die-casting. [2]
- (ii) Give **four** reasons why die-casting is used for this type of toy car. [4]
- (iii) State **two** finishes that can be applied to the body of the toy car. [2]
- (b) (i) Describe the die-casting process. Use sketches where appropriate. [4]
- (ii) The chassis of the toy car is attached to the body by riveting. Describe the riveting process. Use sketches where appropriate. [4]
- (c) Discuss the health and safety implications for the surface finishing of toys. [8]

[Total: 24]

3 Fig. 3 shows a mobile phone.



Fig. 3

- (a) (i) Name **two** specific plastics suitable for the outer casing of the mobile phone. [2]
- (ii) Identify **one** way anthropometric data has been considered in the design of the mobile phone. Use sketches where appropriate. [2]
- (iii) Describe **two** fixing methods that can be used to assemble the two halves of an injection moulded plastic case. Use sketches where appropriate. [4]
- (b) Plastic cases are often produced by injection moulding using a split-die.
- (i) Describe the features of a split-die. Use sketches where appropriate. [4]
- (ii) Explain **two** features of injection moulding that make it an efficient process. Use sketches where appropriate. [4]
- (c) Discuss the implications associated with technological advances in portable electronic equipment. [8]

[Total: 24]

- 4 Fig. 4 shows a coloured four-fold advertising leaflet printed on gloss paper.

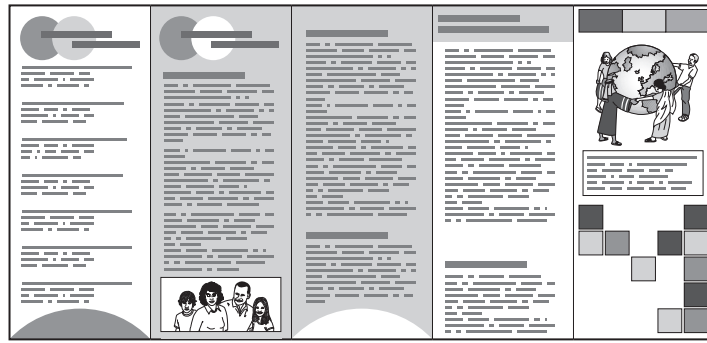


Fig. 4

- (a) (i) Name **two** specific printing methods suitable for printing large runs of coloured leaflets. [2]
- (ii) Give **two** reasons for producing leaflets in a folded form. [2]
- (iii) Composite images incorporating text, graphics and photographs can be digitised for use in CAD.
- Describe **two** stages in preparing a composite image before the printing process. [4]
- (b) Fig. 5 shows a holder, made from board, used to dispense the leaflets. The net of the holder is in one piece.

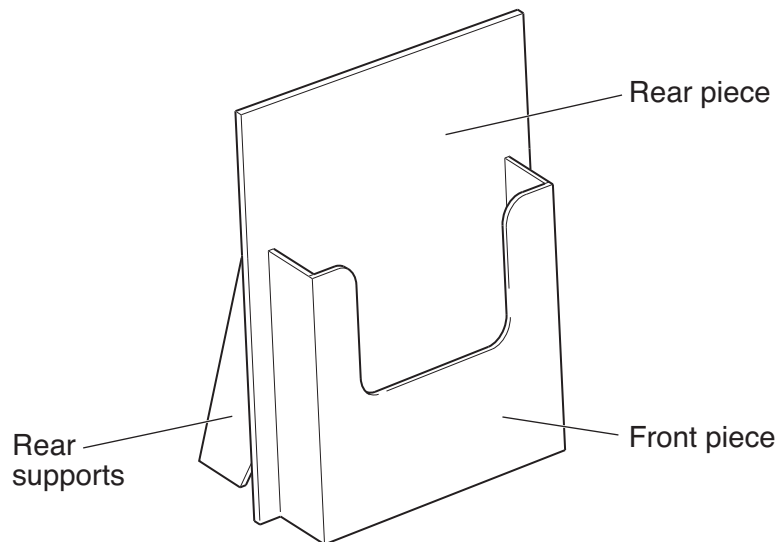


Fig. 5

Draw a suitable net for the holder that would enable it to be assembled from a flat form. Include cut and fold details. [8]

- (c) Discuss the environmental issues associated with waste products produced by the printing industry. [8]

[Total: 24]

- 5 Fig. 6 shows a drinks carrier given to customers by a fast food restaurant.

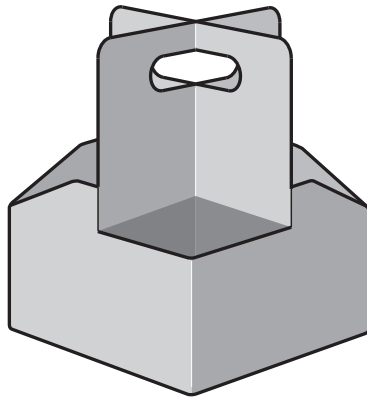


Fig. 6

- (a) (i) State **two** reasons why these drinks carriers would be distributed to a restaurant in a flat form. [2]
- (ii) The drinks carrier is made from corrugated board.
Give **two** reasons why this material is suitable for this type of carrier. [2]
- (iii) Describe **two** ways in which the design of the carrier has been strengthened.
Use sketches where appropriate. [4]
- (b) Describe how the drinks carrier would be designed so that it would lock together when assembled at the point of sale. Use sketches where appropriate. [8]
- (c) Discuss the issues for manufacturers when considering volume production. [8]

[Total: 24]

6 Fig. 7 shows a child's pyjama set with a logo.



Fig. 7

- (a) (i) The logo has been transfer printed onto the pyjamas.
Name **one** alternative method that could be used to add the logo. [1]
- (ii) Name **one** seam that could be used in the construction of the pyjama set, giving **two** reasons for your choice. [3]
- (iii) Give **two** finishes that could be applied to the pyjama set fabric, stating how each would improve the performance of the product. [4]
- (b) Describe the industrial method of transfer printing the logo onto the pyjama set. Use sketches where appropriate. [8]
- (c) Discuss the implications for a manufacturer of using a JIT production system. [8]

[Total: 24]

7 Fig. 8 shows a wardrobe consisting of a fabric cover over a tubular steel inner frame.

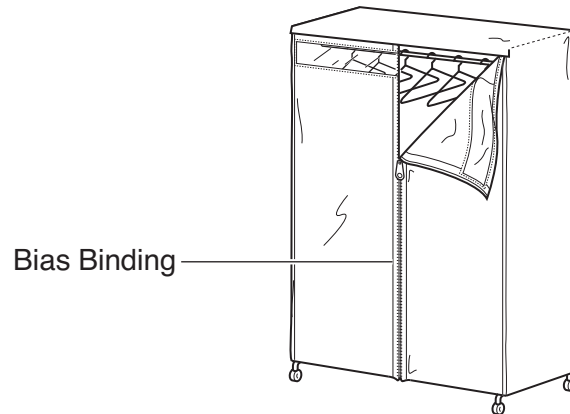


Fig. 8

- (a) (i) Give **four** performance characteristics needed by a fabric used for the cover of the wardrobe. [4]
- (ii) Give **two** reasons why the edges of the fabric used to make the cover of the wardrobe have been finished with bias binding. [2]
- (iii) Describe **one** method of securing the fabric cover to the tubular frame. [2]
- (b) Describe the order of manufacture of the fabric cover for the wardrobe. Use sketches where appropriate. [8]
- (c) Discuss the moral implications associated with the mass production of textile items. [8]

[Total: 24]

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