



# EDExcel GCSE

## RESISTANT MATERIALS

### PAST PAPERS 2010 – 2013

QUESTION 14

PROPERTIES OF MATERIALS  
ENVIRONMENTAL CONCERNS

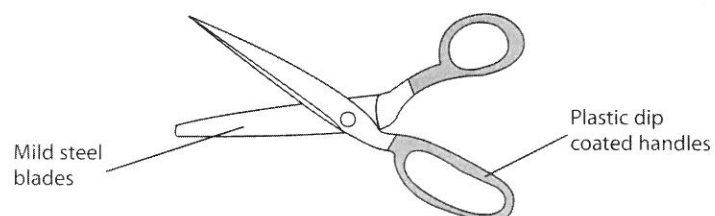
CAD

## THE EXAM

- It is 90 minutes long.
- You will need a BLACK ball point pen for the exam.
- Do NOT use coloured pens, coloured pencils, or highlighters.
- Answer ALL the questions.
- There are 80 marks for the paper.
- Read each question carefully and think “What does the examiner want to read in my answer”, not “I’ll put some information down which may not be relevant”.
- If you find a question hard, leave it and come back to it later.
- Answer the questions you find easiest first (this will be your personal choice).
- Study the way each question is written. There are common themes and the way they are set out is the same each year. Therefore you can work out what the question is going to ask you. Obviously the content will be different (IE a different picture, but the questions will be very similar!)
- If you have time, check your answers and re-read them several times.

Questions 1-10	10 marks (12.5%)	Suggested timings 11 minutes
Question 11	19 marks (23.75%)	Suggested timings 21 minutes
Question 12	16 marks (20%)	Suggested timings 18 minutes
Question 13	16 marks (20%)	Suggested timings 18 minutes
Question 14	19 marks (23.75%)	Suggested timings 21 minutes

14 The drawing below shows a pair of scissors.



(a) Give **two** properties of mild steel that makes it suitable for making the scissors.

For each property, justify your answer.

(4)

Property 1

Justification

Property 2

Justification



(b) The handles of the scissors have been plastic dip coated.

Give **three** reasons for plastic dip coating the handles of the scissors.

(3)

- 1 .....
- 2 .....
- 3 .....

(c) Describe **two** reasons for electroplating the blades of the mild steel scissors.

(4)

- 1 .....  
.....  
.....
- 2 .....  
.....  
.....

(d) The scissors are joined by a rivet.

Describe how a rivet joint is made.

(2)

- .....  
.....  
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H 3 7 0 7 0 A 0 1 7 2 0

\* (e) Care of the environment is an increasing concern for society.

Discuss the ways in which the environmental impact could be reduced during the manufacture of the scissors.

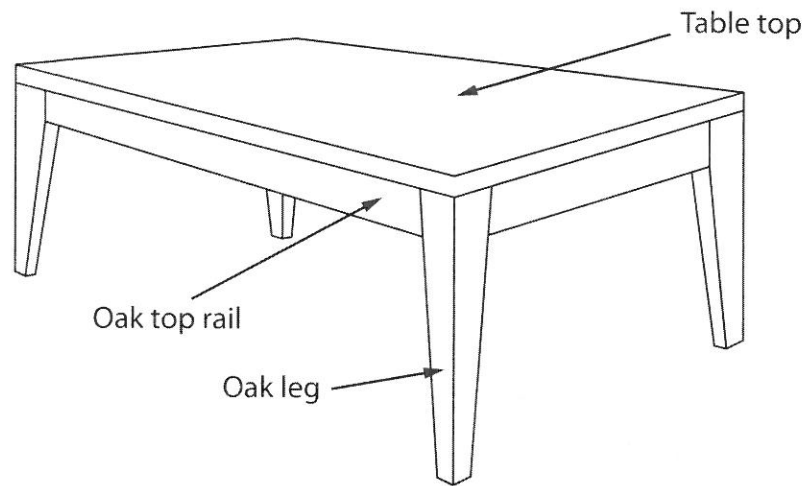
(6)

(Total for Question 14 = 19 marks)

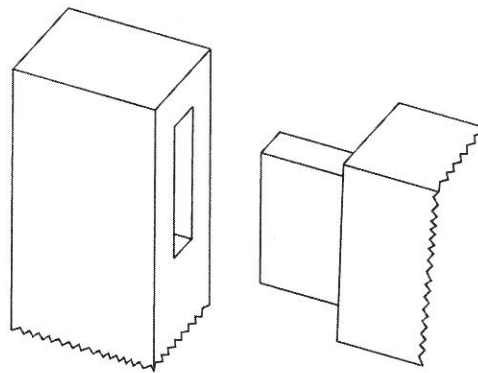
**TOTAL FOR PAPER = 80 MARKS**



14 The picture below shows a dining room table.



The legs are joined to the top rail using the joint shown below.



(a) Name this type of joint.

(1)



(b) Give **two** properties of oak that make it suitable for making the legs of the table.

For each property, justify your answer.

(4)

Property 1

Justification

Property 2

Justification

(c) A thin layer of oak is glued to a sheet of MDF to make the table top.

Describe **two** reasons why this is used rather than solid oak for the table top.

(4)

1

2



(d) The designers and manufacturers are able to have a discussion about the table using a videoconference.

Describe **two** advantages of having the discussion by videoconference.

(4)

1 .....

.....

.....

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2 .....

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\* (e) Waste minimisation in the production of wooden furniture is a key issue in today's society.

Discuss the ways in which waste can be minimised in the manufacture of wooden furniture.

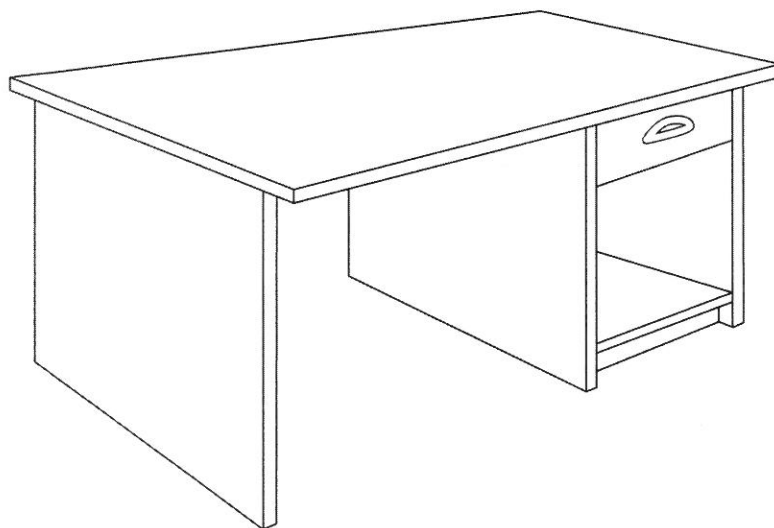
(6)

(Total for Question 14 = 19 marks)

**TOTAL FOR PAPER = 80 MARKS**



- 14 The drawing below shows a computer desk made from medium density fibreboard (MDF).



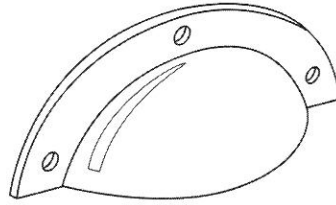
- (a) Name **one** other suitable manufactured board that could have been used to manufacture the computer desk.

(1)



P 3 9 4 2 1 A 0 1 3 1 6

(b) The handle of the desk drawer is made from brass.



(i) Name the **two** metals that are used to make brass.

(2)

1 .....

2 .....

(ii) Give **one** property of brass that makes it suitable for the handle.

Justify your answer.

(2)

Property

.....

Justification

.....

.....

(c) The desk is joined together with knock down fittings, enabling it to be put together in a consumer's home.

Explain **two** reasons why consumers may prefer to buy furniture that uses knock down fittings.

(4)

1 .....

.....

2 .....

.....



(d) The computer desk was designed using computer-aided design (CAD).

Describe **two** advantages for the designer of using CAD to design the computer desk.

(4)

\* (e) Natural wood and timber need to be conserved.

Discuss the ways in which natural wood and timber can be conserved when manufacturing products.

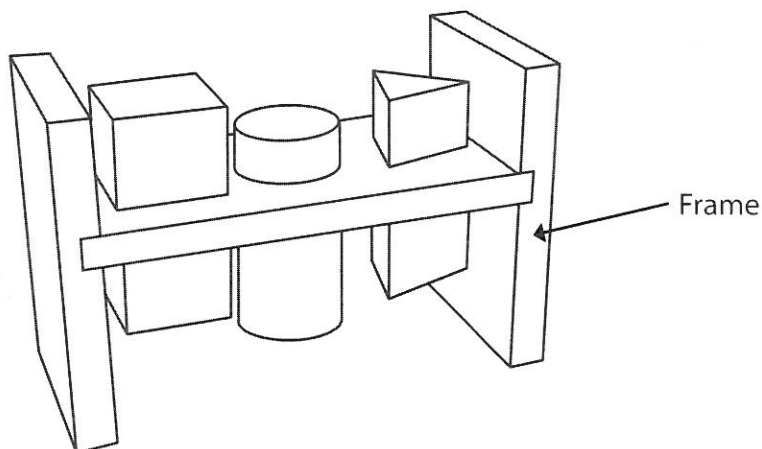


(Total for Question 14 = 19 marks)

**TOTAL FOR PAPER = 80 MARKS**



14 The drawing below shows a child's toy.



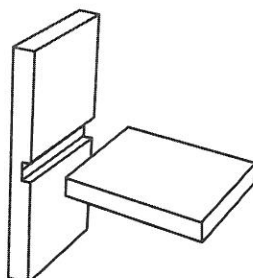
The frame of the child's toy is made from oak.

(a) Give **two** properties of oak that make it suitable for the frame of the child's toy.

(2)

1 .....

2 .....



(b) (i) Name the type of joint shown above which is used in the frame.

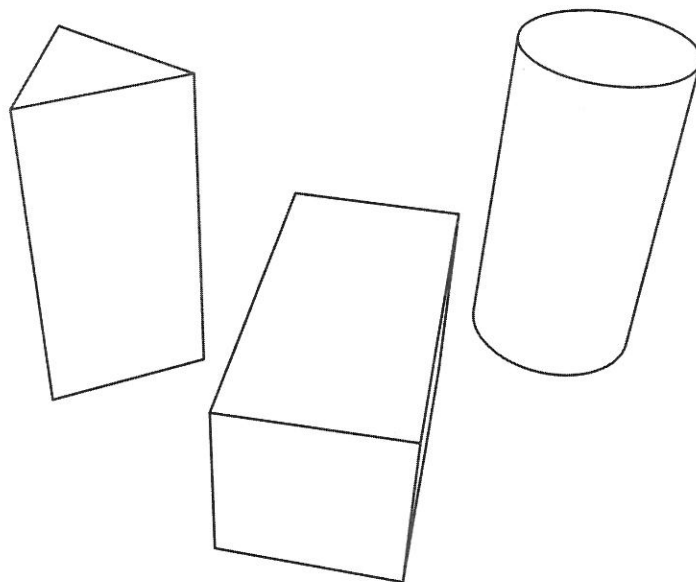
(1)

(ii) Name an appropriate adhesive to use when gluing the joint.

(1)



(c) The shaped blocks shown below are made from polyvinyl chloride (PVC).



(i) Give **two** properties of PVC that make it suitable for the shaped blocks.

Justify your answer for each property.

(4)

Property 1

Justification

Property 2

Justification

(ii) The shaped blocks are hollow.

Name **one** process that could be used to make the hollow shaped blocks.

(1)



P 4 1 1 6 1 A 0 1 7 2 0

(d) The final toy design was virtually modelled and tested using computer-aided design (CAD).

Describe **two** advantages of virtually modelling and testing the final design using CAD before starting manufacture.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....





\*(e) It is said that we live in a 'throwaway' culture.

Discuss the ways in which built-in product obsolescence contributes to a 'throwaway' culture.

(6)

(Total for Question 14 = 19 marks)

**TOTAL FOR PAPER = 80 MARKS**



P 4 1 1 6 1 A 0 1 9 2 0