

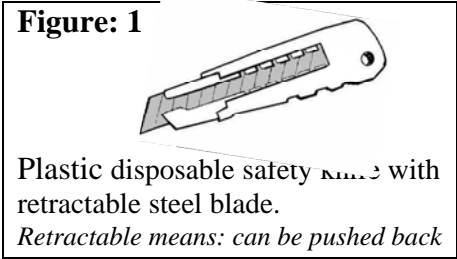
Name: _____

Class: _____

Answer all questions of section A, and all questions of TWO other sections of your choice.

SECTION (A)
DESIGN PROCESS
 This section carries a total of 50 marks

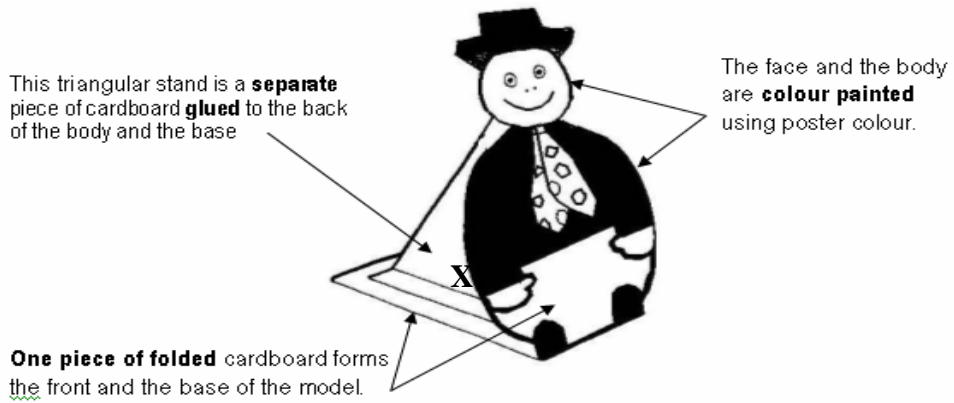
1. Before designers begin to design a new product, they usually study similar products so that they can improve upon them. Designers call this study, "Product Analysis". Study carefully figure 1, and then answer the questions to do some analysis of the knife in picture.



	CRITERIA	ANALYSIS
a	Who will use it?	
b	Where will it be used?	
c	What materials is it made of?	
d	What standard components have been used?	
e	What safety aspect does it have?	
f	How long will it last for?	
g	How will it be disposed of?	

7 marks

2. Here is a sketch of a stand up figure of a man.
It is made of cardboard and is approximately 10cm high.



- a. Finish the following work plan for making the stand up model shown above.

Step	Task
1	Prepare tools and materials.
2	
3	

9 marks

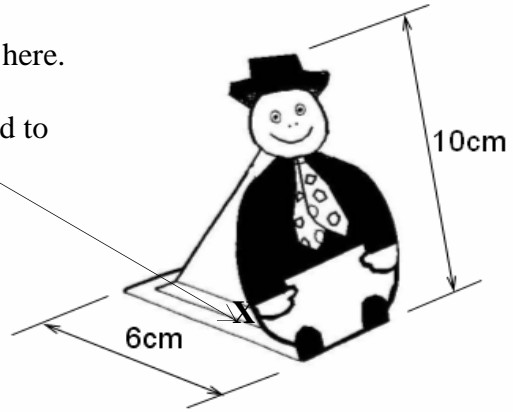
- b. Write down a list of the materials and tools you would require for making the stand up model.

Materials		Tools	

4 marks

3. Observe the dimensions of the model pictured here.

Observe the triangular piece of cardboard glued to its back to make it stand. (marked X)



Use ruler and pencil to draw a **FULL SIZED** shape for the cardboard stand marked X in picture.

Show folding lines and allowances for gluing the stand in place.

You are not restricted with exact dimensions but the shape must be **suitably proportional** to the model shown in the above picture.

12 marks

4. Explain briefly how you would evaluate initial ideas in order to find out the best idea for a project.

8 marks

5. Give three reasons why you might need to make a model before continuing work on an actual project during Design and Technology work.

- i. _____
- ii. _____
- iii. _____

3 marks

6. Which are the two final stages in a design process by which you can see how good your project is and how you can improve it?

- i. _____
- ii. _____

2 marks

7. You need to show your ICT skills when presenting the design folio with your project.

• **Scanner** • **Keyboard** • **Monitor** • **Printer** • **Mouse** • **Speakers** • **Digital Camera**

Which of the above-mentioned devices would you use

- i to type the contents list for the design folio? _____
- ii to copy the contents list on paper? _____
- iii to copy a diagram from a book? _____
- iv for photos of how you made the project? _____
- v for drawing circles and rectangles? _____

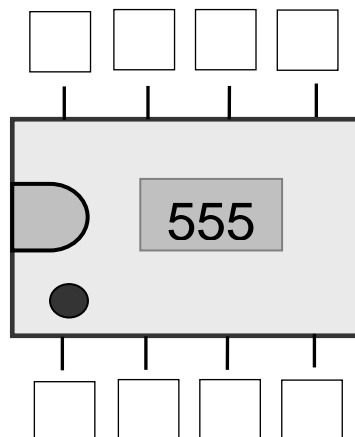
5 marks

END OF SECTION (A)

**SECTION (B)
ELECTRONICS**

Total marks for this section: 25

1. The diagram shows a 555 integrated circuit (IC). Mark the numbers to **identify the order** of pin numbers. Use the boxes provided.



4 marks

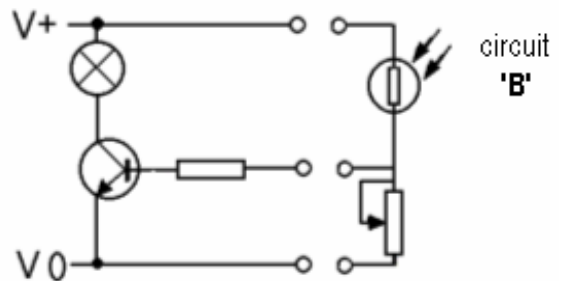
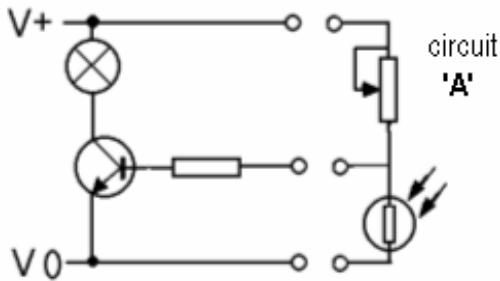
2. Timers can be constructed using the 555 integrated circuit. Write the type of timer when:

- i. it oscillates continually between its two states. _____
- ii. it returns to original state after a timing period. _____
- iii. it will change output state and remains in this state until triggered again. _____

3 marks

3. The circuits shown below can switch on a lamp automatically depending on the position of the LDR.

- a. Which circuit switches the lamp ON at nighttimes? _____
- b. Which circuit switches the lamp ON at daytime? _____



4 marks

4. Write two techniques that should be used to ensure good electrical connections when using a breadboard.

- i. _____
- ii. _____

4 marks

5. a. What is the purpose of a capacitor in an electronic circuit?

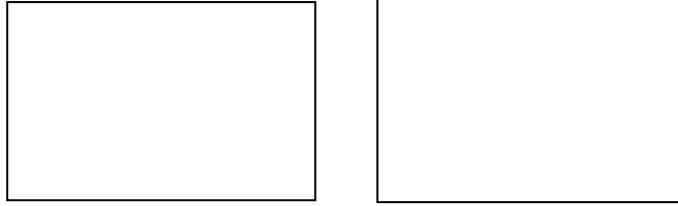
b. Capacitance is measured in _____

2 marks

6. What do the terms POLARISED and NON-POLARISED mean when working with capacitors?

2 marks

7. Draw the symbols of: i. A polarised capacitor ii A non-polarised capacitor



2 marks

-
8. Using symbols draw a circuit diagram showing how a Darlington Pair is connected. Indicate the names of the connections.

4 marks

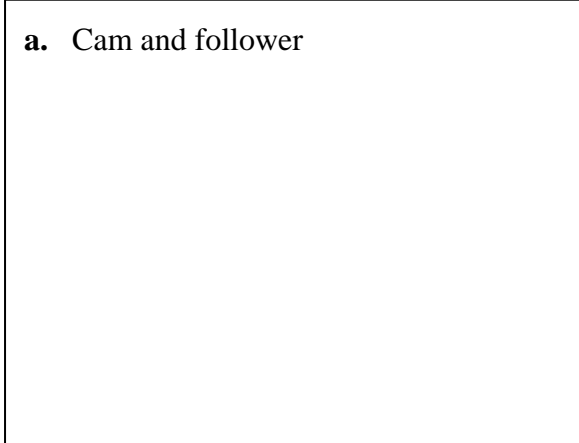
END OF SECTION (B)

SECTION (C)
Resistant Materials

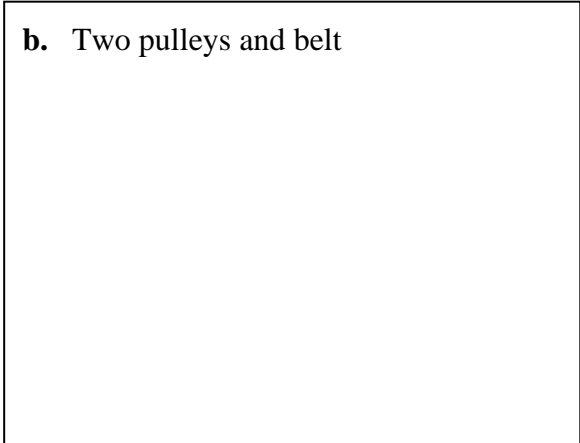
Total marks for this section: 25

1. Sketch neatly the following mechanisms. Label your diagrams to indicate the main parts.

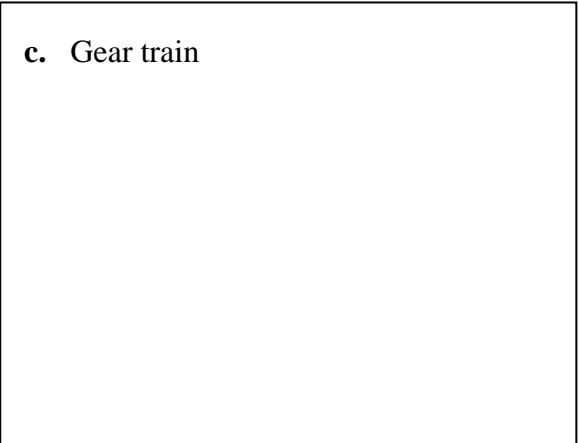
a. Cam and follower



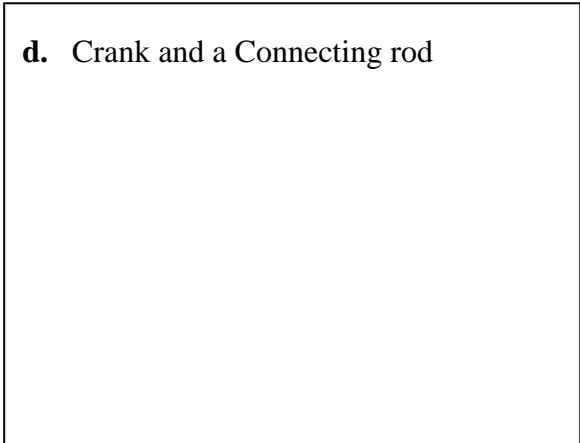
b. Two pulleys and belt



c. Gear train



d. Crank and a Connecting rod



4 marks

2. Give an example where each mechanism is in common use.

MECHANISM	USE
Chain and sprocket	
Set of pulleys	
Rack and pinion	
Gear train	

4 marks

3. State three advantages of using a manufactured board over timber.

- i. _____
- ii. _____
- iii. _____

3 marks

4. a. Metals are classified into two groups. Name the two groups.

- i. _____
- ii. _____

b. State the main element that distinguishes one group from the other.

3 marks

5. Name two thermosetting plastics and state one particular use of each.

Thermosetting plastic	Use

2 marks

6. Metals may also be joined by soft soldering and arc welding.
Explain in point form each process and give one practical application of each.

SOFT SOLDERING:

Example of where soft soldering can be applied. _____

ARC WELDING:

Example of where arc welding can be applied. _____

6 marks

-
7. By means of a diagram show how two pieces of wood are fixed together using countersunk wood screws. Label your diagram.


3 marks

END OF SECTION (C) _____

SECTION (D)
FOOD

Total marks for this section: 25

1. Below is the label for a packed chocolate cake. Choose 4 pieces of information, which must be there by law and explain why.

<p>Ingredients: Chocolate, wheat flour, cocoa butter, sugar, vegetable oil and fat, raising agent, E450</p>		<p>Storage instruction: Keep in a cool and dry place.</p>									
<table border="1"> <tr> <th colspan="2">Nutritional information per 100g:</th> </tr> <tr> <td>Carbohydrates:</td> <td>59.5g</td> </tr> <tr> <td>Protein:</td> <td>5.5g</td> </tr> <tr> <td>Fats:</td> <td>24.0g</td> </tr> <tr> <td>Energy value:</td> <td>475kcal</td> </tr> </table>		Nutritional information per 100g:		Carbohydrates:	59.5g	Protein:	5.5g	Fats:	24.0g	Energy value:	475kcal
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Carbohydrates:	59.5g										
Protein:	5.5g										
Fats:	24.0g										
Energy value:	475kcal										
<p>Net weight: € 135g</p>		<p>Suitable for vegetarians</p>									

- i. _____

- ii. _____

- iii. _____

- iv. _____

8 marks

2. Different methods of processing allow the development from a group of ingredients to the next group of foods.
Which are the missing components in this 3-block diagram?
Say what each group of component (ingredient) called?



2, 6 marks

3. Eggs have many uses in food preparation, which add valuable characteristics to food products. Mention **TWO** functional properties of eggs.

- i. _____
- ii. _____

2 marks

4. What safety and hygiene precautions should be taken to ensure good safety standards during food preparation?
- i. _____
 - ii. _____
 - iii. _____
 - iv. _____
- 4 marks**
-

5. Name three functions that food packaging has to fulfil?
- i. _____
 - ii. _____
 - iii. _____
- 3 marks**
-

END OF SECTION (D)

**SECTION (E)
TEXTILES**

Total marks for this section: 25

1. What type of fabric property would you look for, in a garment when the following needs are required? Choose the correct answer from the following: washable; thermal insulator; colourfast; non-shrinkable; crease-resistant.
- i. To keep you warm: _____
 - ii. Not to shrink: _____
 - iii. With a colour that does not fade: _____
 - iv. To remain the same size after several washings: _____
 - v. Not to crease: _____

5 marks

2. Which of the following fabrics is either synthetic or regenerated?

Viscose: _____

Nylon: _____

Polyester: _____

Acrylic: _____

Acetate: _____

5 marks

3. Give **two** different safety points that should be taken into account when using each of the following:

i. electric iron: _____

ii. electric sewing machine: _____

2, 2, marks

4. Some fabrics are made from a mixture of two or more different fibres, such as 80% wool and 20% acrylic. Give **THREE** reasons why mixture of fibres is used?

i. _____
ii. _____
iii. _____

6 marks

5. Mention **THREE** suitable methods of finishing the edges of a jacket made from a highly fraying fabric.

i. _____
ii. _____
iii. _____

3 marks

6. What is the easiest **WAY** of recycling fabrics?

2 marks

END OF SECTION (E)
