



*Leaving Certificate Examination, 2013*

# *Technology*

## *Higher Level*

*Friday, 21 June*  
*Afternoon, 2:00 - 4:30*

There are **three** Sections in this paper. Attempt **all three** Sections.

**Section A:** Core - Short-answer questions.

**Section B:** Core - Long-answer questions.

**Section C:** Options - Long-answer questions.

### *Section A - Core* (72 marks)

**Instructions:**

- (a) Answer **any twelve** questions in the spaces provided.  
All questions in Section A carry 6 marks.
- (b) Draw all sketches in pencil.
- (c) Hand up this booklet at the end of the examination.
- (d) Write your examination number in the box provided  
and on all other pages used.

**Examination Number:**

Centre Number

Section	Mark
Section A	
Section B	
Section C	
Total	
Grade	

**Section A.** Answer *any twelve* questions. All questions carry 6 marks.

1. When constructed, 'The Shannon Scheme' hydro-electric plant at Ardnacrusha Co. Clare, had the capacity to supply power for the entire country. It currently accounts for 2-3% of Ireland's power generation. Outline the main environmental consequences of this hydro-power generating station on Ireland's largest river.

---

---

---

---

---



2. Analyse the toy design shown and then outline **two** aspects of the toy that must meet safety criteria before the toy reaches the market.

(i) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(ii) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



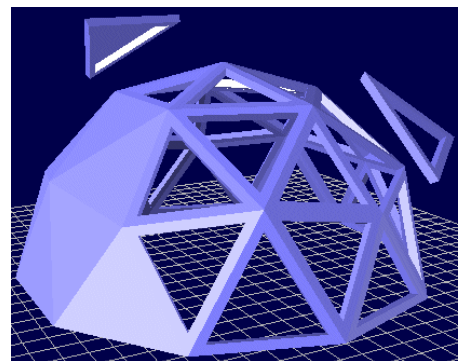
3. Geodesic designs can be used to form any curved enclosed space. The geodesic dome has been widely used in structures ranging from Disney's dome at Epcot to tents for leisure use.

(i) Suggest **two** advantages of geodesic domes.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(ii) Suggest **one** reason why geodesic designs have been less successful in the domestic housing market.

\_\_\_\_\_  
\_\_\_\_\_



4. In the design and production of safety products such as the mining helmet shown, identify a specific use for **each** of the following processes:

(i) Model making.

---

---

(ii) Computer simulation.

---

---

(iii) Computer-aided drafting.

---

---



5. Manufacturers invest time and money in market research. Explain the purpose of undertaking market research in **each** of the following cases:

(i) On a product range which has been on the market for 18 months.

---

---

(ii) When launching a new product.

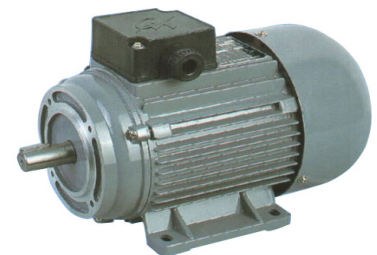
---

---



6. The operating voltage of a DC electric motor is 240 V and the current it draws from the supply is 12 amps. The power output of the motor is 2400 watts. Calculate the efficiency of the motor (expressed as a %).

Calculation:



7. Most cameras sold today are digital and such cameras are also incorporated into many mobile devices.

Describe, with specific examples, how a computer can be used to edit digital images.

---

---

---

Explain **one** factor that may affect the quality of a digital image.

---

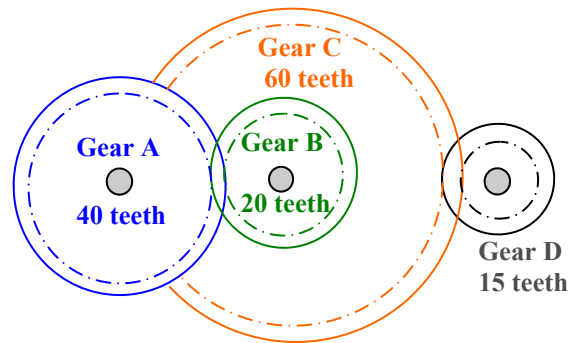
---



8. A gear system is used in the transmission of power.

(i) Name the type of gear system shown.

---

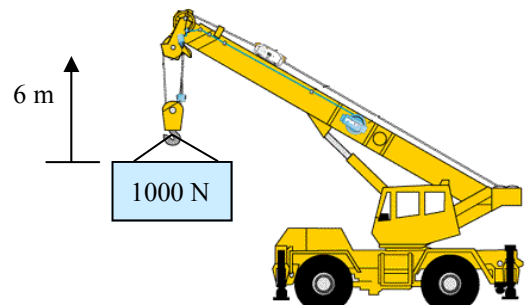


(ii) Calculate the gear ratio of this gear system.

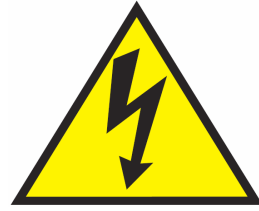
Calculation:

9. Calculate the power needed by the mobile crane to raise the load shown 6 metres in 5 seconds.

Calculation:

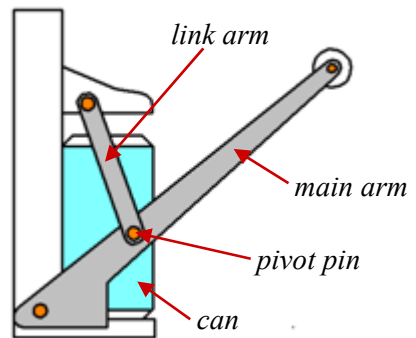


10. The Health and Safety Authority (HSA) provides a range of standardised safety signage. For **each** of the safety signs shown, name the hazard and state where the sign might be used.



<i>Hazard</i>	<i>Hazard</i>	<i>Hazard</i>
<i>Where used</i>	<i>Where used</i>	<i>Where used</i>

11. A number of forces are present when the can crusher shown is in use.



While the can crusher is in use, identify the force exerted on **each** of the following parts:

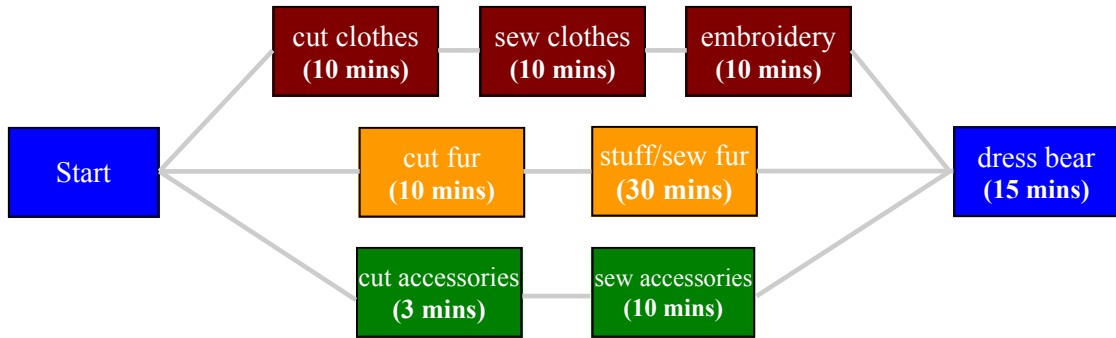
The main arm \_\_\_\_\_

The pivot pin \_\_\_\_\_

The link arm \_\_\_\_\_

The can being crushed \_\_\_\_\_

12. In the manufacture of stuffed toy bears, the following process is used:



- (i) Determine how long it takes to make one stuffed toy? \_\_\_\_\_ minutes
- (ii) The manufacturing company wants to increase productivity in this process. Identify **one** area where the time could be reduced in order to produce bears at a faster rate.

---

---

13. Make well-proportioned freehand sketches of **two** principal orthographic views of the Dublin Convention Centre building shown.

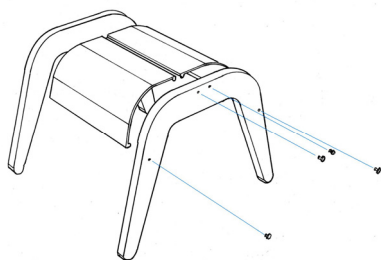


14. The schoolbag shown is manufactured from a variety of materials. For **each** labelled part, complete the table below by naming a suitable material and suggesting a property which makes the material suitable for this use.

Part	Material	Property
Straps		
Body		
Fastener		



15. An exploded view of a stool is shown. Draw a pictorial view of the **assembled** stool. Use **two** graphic techniques to enhance your graphic representation of the stool.



Exploded view

**Blank Page**