



Junior Certificate Examination, 2010

Technology

Ordinary Level

Wednesday, 23 June
Afternoon, 2:00 - 4:00

Instructions:

1. Answer **Section A** (short answer questions). 80 marks
2. Answer **two** questions from **Section B**. 80 marks
3. Hand up this paper at the end of the examination.
4. Write your examination number in the box below.

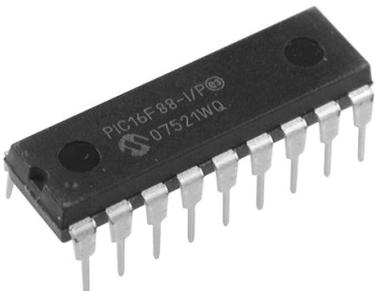
Centre Number

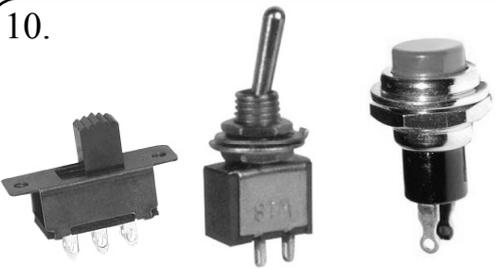
Examination Number

1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3+4)	
	Note: The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal the mark in the Móriomlán box on the script	

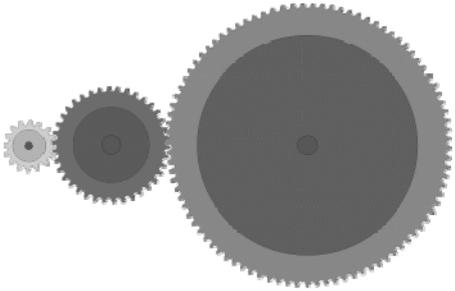
Total Mark	
Question	Mark
Section A	
Section B Q 1	
Q 2	
Q 3	
Q 4	
Total	
Grade	

Section A – 80 Marks. Answer **any sixteen** questions in this section.

<p>1.</p> 	<p>This drawing of a plane is a(n):</p>	<p>Pictorial view</p>	
		<p>Plan view</p>	
		<p>End view</p>	
<p>2.</p> 	<p>Guitar strings are in:</p>	<p>Compression</p>	
		<p>Tension</p>	
		<p>Torsion</p>	
<p>3.</p> 	<p>SD (Secure Digital) memory cards are commonly used in:</p>	<p>Televisions</p>	
		<p>DVD players</p>	
		<p>Digital cameras</p>	
<p>4.</p> 	<p>This is a(n):</p>	<p>LDR</p>	
		<p>Variable Resistor</p>	
		<p>Capacitor</p>	
<p>5.</p> 	<p>In electronics, IC stands for:</p>	<p>Industrial Chip</p>	
		<p>Integrated Circuit</p>	
		<p>Internal Circuit</p>	

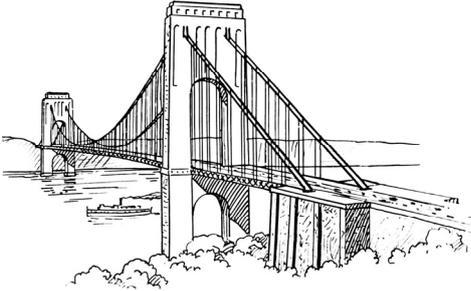
<p>6.</p> 	<p>Bicycle brakes change a:</p>	<p>Push into a pull</p>	
		<p>Push into a push</p>	
		<p>Pull into a push</p>	
<p>7.</p> 	<p>Solar phone chargers are devices that use:</p>	<p>Renewable energy</p>	
		<p>Fossil fuels</p>	
		<p>Geothermal energy</p>	
<p>8.</p> 	<p>This is a:</p>	<p>Dividers</p>	
		<p>Scriber</p>	
		<p>Centre punch</p>	
<p>9.</p> 	<p>This is a:</p>	<p>Hex nut</p>	
		<p>Square nut</p>	
		<p>Hex bolt</p>	
<p>10.</p>  <p>A B C</p>	<p>Which of these components is a toggle switch?</p>	<p>Component A</p>	
		<p>Component B</p>	
		<p>Component C</p>	

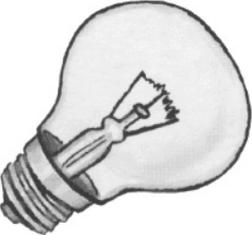
11. 	A jigsaw blade:	Oscillates	
		Reciprocates	
		Rotates	

12. 	The middle gear in this gear train is a(n):	Pinion gear	
		Compound gear	
		Idler gear	

13. 	With regard to the foot-pump, the arrow points to the:	Effort	
		Fulcrum	
		Load	

14. 	These are:	Spur gears	
		Bevel gears	
		Worm gears	

15. 	This is a(n):	Arch bridge	
		Beam bridge	
		Suspension bridge	

16.		Power is measured in:	Joules	
			Watts	
			Volts	

17.		This packaging is:	Cylindrical	
			Spherical	
			Conical	

18.		TV remote controls use:	Infra-Red	
			Bluetooth	
			Microwaves	

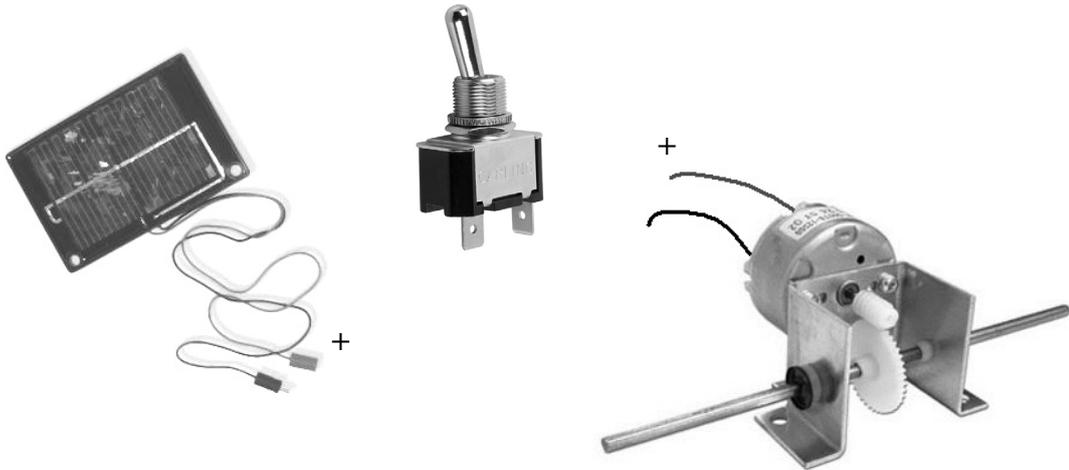
19.		Brass is an alloy of:	Gold and silver	
			Copper and zinc	
			Lead and tin	

20.		Diggers use:	Electric rams	
			Air powered rams	
			Hydraulic powered rams	

Question 1

12 marks

- (c) (i) In this device solar cells are used to power a motorised gearbox that in turn drives the rotating display. The gearbox, switch and one of the solar panels are shown below. Show how these components should be connected in order to power the motor.



- (ii) Name the type of gear system used here and give **two** advantages of its use.

Type of gear system: _____

Advantage 1: _____

Advantage 2: _____

- (d) (i) Why must thermoplastics be used when vacuum forming? 8 marks

Answer: _____

- (ii) Give **one** advantage and **one** disadvantage of using plastics in manufacturing.

Advantage: _____

Disadvantage: _____

- (iii) After vacuum forming the body of the display unit, its bottom edge had to be trimmed and properly finished. Briefly explain how you would produce a good quality finish on this edge.

Explanation: _____

Question 2

40 Marks

12 marks

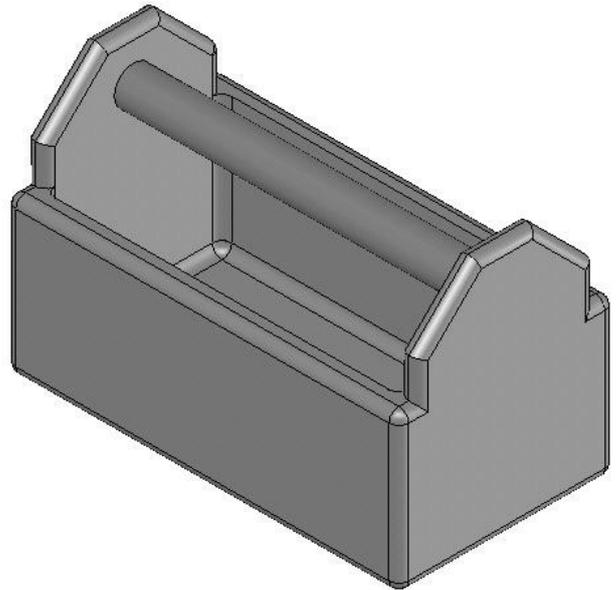
(a) An injection moulded plastic toolbox made in a factory is shown.

(i) List **three** advantages of using plastic to make this toolbox.

- 1. _____

- 2. _____

- 3. _____



Moulded plastic toolbox

(ii) The toolbox was found to slip easily when placed on a smooth surface. Explain how you would solve this problem.

(iii) The toolbox has rounded edges. Suggest **two** reasons for this.

Reason 1: _____

Reason 2: _____

(b) Using a material of your choice make a sketch of a design for a closed-top toolbox.

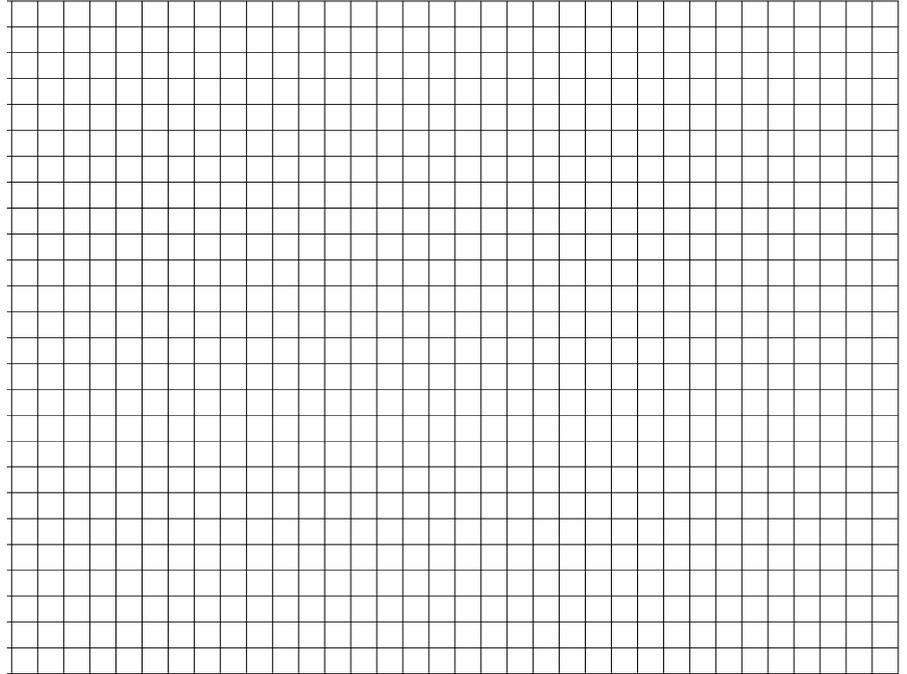
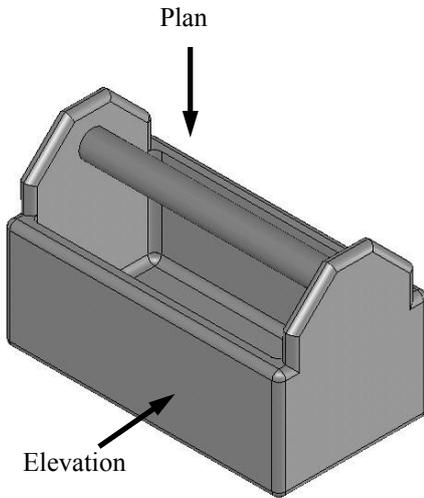
8 marks

Sketch of toolbox

Question 2

(c) In the grid below make well-proportioned sketches of an elevation and a plan view of the toolbox.

8 marks



(d) Name **each** of the tools shown below and suggest **one** use for each.

6 marks



Tool: _____

Use: _____



Tool: _____

Use: _____



Tool: _____

Use: _____

(e) List **three** things that you would need to know before designing a toolbox.

6 marks

1. _____

2. _____

3. _____

Question 3

- (c) (i) When the propeller shown was fitted to the motor, the airboat was found to be unsafe to operate. In the space below sketch a guard for the propeller which would make the airboat safe to use. 12 marks



Sketch

- (ii) Safety is very important in the technology workshop. List **four** safety precautions that must be observed in your day-to-day work in the technology room.

1. _____
2. _____
3. _____
4. _____

- (d) (i) Airboats are used in search and rescue missions on water throughout the world. In the space opposite make a sketch of your design for a logo for such a search and rescue airboat.

Logo design

- (ii) Many manufactured products have a logo on them or on their packaging. List **two** reasons why companies use logos.

- Reason 1. _____
- _____
- Reason 2. _____
- _____

Question 4

40 Marks

(a) *16 marks*

(i) Shopping in the supermarket is now a very different experience to what it was some years ago. Suggest **three** ways in which technology has improved the shopping experience.

1. _____

2. _____

3. _____

(ii) Using **two** examples explain how the Internet has changed the way we shop.

1. _____

2. _____

(b) *12 marks*

(i) The way in which we use fossil fuels for travel must change. Suggest **three** reasons for this change.

1. _____

2. _____

3. _____



(ii) List **three** ways that we can improve the manner in which we deal with our waste materials.

1. _____

2. _____

3. _____

(c) *12 marks*

Home entertainment systems have improved greatly in recent years. Using at least **two** examples discuss how home entertainment systems have changed and improved.
