

Write your name here	
Surname	Other names
<b>Edexcel Principal Learning</b>	Centre Number
	Candidate Number
<b>Engineering</b>	
<b>Level 1</b>	
<b>Unit 1: Introducing the Engineering World</b>	
Thursday 14 January 2010 – Morning <b>Time: 1 hour</b>	Paper Reference <b>EG101/01</b>
<b>You do not need any other materials.</b>	Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 45.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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Turn over ►

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**All questions must be answered with a cross .**  
**If you change your mind about an answer, put a line through the box**   
**and then mark your new answer with a cross .**

1 Low energy light bulbs are good for the environment because they:

A	use less electricity	<input type="checkbox"/>
B	cost more to buy	<input type="checkbox"/>
C	generate more heat	<input type="checkbox"/>
D	take up less space	<input type="checkbox"/>

(Total for Question 1 = 1 mark)

2 Which **one** of the following processes would be used to join steel parts together?

A	Fabrication	<input type="checkbox"/>
B	Casting	<input type="checkbox"/>
C	Electro-plating	<input type="checkbox"/>
D	Machining	<input type="checkbox"/>

(Total for Question 2 = 1 mark)

3 The **most** suitable material to use as a conductor in an electric cable is:

A	steel wire	<input type="checkbox"/>
B	carbon fibre	<input type="checkbox"/>
C	glass fibre	<input type="checkbox"/>
D	copper wire	<input type="checkbox"/>

(Total for Question 3 = 1 mark)

4 Global Positioning Systems (GPS) are used in:

A	broadband networks	<input type="checkbox"/>
B	machine tool controls	<input type="checkbox"/>
C	satellite navigation devices	<input type="checkbox"/>
D	fuel injection systems	<input type="checkbox"/>

(Total for Question 4 = 1 mark)



5 Changes in the Earth's temperature are known as:

A	district heating	<input type="checkbox"/>
B	global warming	<input type="checkbox"/>
C	polar melting	<input type="checkbox"/>
D	climate freezing	<input type="checkbox"/>

(Total for Question 5 = 1 mark)

6 Wood used for making furniture is considered sustainable if:

A	it is painted with a preservative	<input type="checkbox"/>
B	it is mass produced	<input type="checkbox"/>
C	for every tree used a new one is planted	<input type="checkbox"/>
D	metal is used instead	<input type="checkbox"/>

(Total for Question 6 = 1 mark)

7 Diesel used in lorries is an example of:

A	solar power	<input type="checkbox"/>
B	wave power	<input type="checkbox"/>
C	nuclear fuel	<input type="checkbox"/>
D	fossil fuel	<input type="checkbox"/>

(Total for Question 7 = 1 mark)

8 Which **one** of the following contributes to the greenhouse effect?

A	Carbon dioxide	<input type="checkbox"/>
B	Carbon isotope	<input type="checkbox"/>
C	Carbon dating	<input type="checkbox"/>
D	Carbon quadroxide	<input type="checkbox"/>

(Total for Question 8 = 1 mark)



9 Lagging used in the lofts of houses improves energy efficiency because it:

A	radiates heat	<input type="checkbox"/>
B	conducts heat	<input type="checkbox"/>
C	insulates against heat loss	<input type="checkbox"/>
D	absorbs heat from the environment	<input type="checkbox"/>

(Total for Question 9 = 1 mark)

10 Farmyard tractors are designed by:

A	marine engineers	<input type="checkbox"/>
B	civil engineers	<input type="checkbox"/>
C	automotive engineers	<input type="checkbox"/>
D	environmental engineers	<input type="checkbox"/>

(Total for Question 10 = 1 mark)

11 (a) In UK cities, most homes receive their electrical supply from the:

(1)

A	International System	<input type="checkbox"/>
B	Local Network	<input type="checkbox"/>
C	District Web	<input type="checkbox"/>
D	National Grid	<input type="checkbox"/>

(b) Repairs in electricity power stations are made by:

(1)

A	clerical personnel	<input type="checkbox"/>
B	maintenance workers	<input type="checkbox"/>
C	design engineers	<input type="checkbox"/>
D	management staff	<input type="checkbox"/>

(Total for Question 11 = 2 marks)



12



(a) The body of kitchen sink taps is commonly made from:

(1)

<b>A</b>	glass	<input type="checkbox"/>
<b>B</b>	cement	<input type="checkbox"/>
<b>C</b>	brass	<input type="checkbox"/>
<b>D</b>	wood	<input type="checkbox"/>

(b) The process used for making the body of kitchen sink taps is:

(1)

<b>A</b>	painting	<input type="checkbox"/>
<b>B</b>	extrusion	<input type="checkbox"/>
<b>C</b>	welding	<input type="checkbox"/>
<b>D</b>	casting	<input type="checkbox"/>

(c) In most UK homes, waste water emptied from kitchen sinks:

(1)

<b>A</b>	flows directly into rivers	<input type="checkbox"/>
<b>B</b>	evaporates into the air	<input type="checkbox"/>
<b>C</b>	soaks into the garden	<input type="checkbox"/>
<b>D</b>	drains into treatment plants	<input type="checkbox"/>

(Total for Question 12 = 3 marks)



13 (a) Which industry sector manufactures personal music equipment like MP3 players?

(1)

A	Chemical	<input type="checkbox"/>
B	Entertainment	<input type="checkbox"/>
C	Electronic	<input type="checkbox"/>
D	Automotive	<input type="checkbox"/>

(b) The WEEE regulation relates to the disposal of personal music equipment.

What does WEEE stand for?

(1)

A	Waste European Electrical Equipment	<input type="checkbox"/>
B	Worldwide Electrical/Electronic Energy	<input type="checkbox"/>
C	Waste Electrical and Electronic Equipment	<input type="checkbox"/>
D	Worn-out Electrical and Electronic Equipment	<input type="checkbox"/>

(c) Downloaded entertainment programmes listened to on MP3 players are **not** transmitted by:

(1)

A	radio signals	<input type="checkbox"/>
B	bluetooth	<input type="checkbox"/>
C	underground telephone cables	<input type="checkbox"/>
D	global positioning systems	<input type="checkbox"/>

(d) The legal reason that MP3 players have to be disposed of carefully is:

(1)

A	they are subject to the Trades Description Act	<input type="checkbox"/>
B	the electronic parts contain mercury	<input type="checkbox"/>
C	the case is made from toxic material	<input type="checkbox"/>
D	they store personal data	<input type="checkbox"/>

(Total for Question 13 = 4 marks)



14 Which **one** of the following energy sources is used for generating most of the electricity supplied to UK homes?

A	Solar	<input type="checkbox"/>
B	Tidal	<input type="checkbox"/>
C	Coal	<input type="checkbox"/>
D	Wind	<input type="checkbox"/>

(Total for Question 14 = 1 mark)

15 Polymers are used as the outer covering of electrical cables typically attached to televisions because they are a:

A	conducting material	<input type="checkbox"/>
B	non-conducting material	<input type="checkbox"/>
C	magnetic material	<input type="checkbox"/>
D	non-magnetic material	<input type="checkbox"/>

(Total for Question 15 = 1 mark)

16 When paper and cardboard are thrown away in special bins for re-use they are:

A	recycled	<input type="checkbox"/>
B	redeemed	<input type="checkbox"/>
C	rendered	<input type="checkbox"/>
D	reduced	<input type="checkbox"/>

(Total for Question 16 = 1 mark)

17 Sports equipment bags may be made out of polyester.

Which **one** of the following statements is **not** true?

A	Polyester has high wear resistance	<input type="checkbox"/>
B	Polyester is made from renewable raw material	<input type="checkbox"/>
C	Polyester has good strength	<input type="checkbox"/>
D	Polyester is a lightweight material	<input type="checkbox"/>

(Total for Question 17 = 1 mark)



**18** Which **one** of the following engineering processes is used to make metal drain covers?

<b>A</b>	Casting	<input type="checkbox"/>
<b>B</b>	Vacuum forming	<input type="checkbox"/>
<b>C</b>	Fabricating	<input type="checkbox"/>
<b>D</b>	Injection moulding	<input type="checkbox"/>

**(Total for Question 18 = 1 mark)**





19



(a) Which **one** of the following industry sectors is responsible for the building of motorways?

(1)

<b>A</b>	Civil	<input type="checkbox"/>
<b>B</b>	Automotive	<input type="checkbox"/>
<b>C</b>	Aerospace	<input type="checkbox"/>
<b>D</b>	Chemical	<input type="checkbox"/>

(b) Motorways help the economy in the UK **mainly** because they:

(1)

<b>A</b>	are longer than most roads	<input type="checkbox"/>
<b>B</b>	cost money to maintain	<input type="checkbox"/>
<b>C</b>	make it easier to move goods around	<input type="checkbox"/>
<b>D</b>	have services that charge more for fuel	<input type="checkbox"/>

(c) Motorway crash barriers are often made from:

(1)

<b>A</b>	glass fibre	<input type="checkbox"/>
<b>B</b>	steel alloys	<input type="checkbox"/>
<b>C</b>	wooden composites	<input type="checkbox"/>
<b>D</b>	aluminium alloy	<input type="checkbox"/>

(Total for Question 19 = 3 marks)



20 (a) Bio-diesel can be used as fuel for:

(1)

A	electric motors	<input type="checkbox"/>
B	solar panels	<input type="checkbox"/>
C	wind turbines	<input type="checkbox"/>
D	vehicle engines	<input type="checkbox"/>

(b) Bio-diesel fuel is more sustainable than traditional diesel/petrol fuel because it is made from:

(1)

A	agricultural crops	<input type="checkbox"/>
B	recycled paper	<input type="checkbox"/>
C	North sea oil deposits	<input type="checkbox"/>
D	crushed metals	<input type="checkbox"/>

(Total for Question 20 = 2 marks)

21 Hot food storage racks used in fast food restaurants are likely to be made from:

A	polythene sheet	<input type="checkbox"/>
B	stainless steel sheet	<input type="checkbox"/>
C	flexi-plywood sheet	<input type="checkbox"/>
D	lead sheet	<input type="checkbox"/>

(Total for Question 21 = 1 mark)



22 (a) Which process is used to make domestic copper pipes?

(1)

<b>A</b>	Casting	<input type="checkbox"/>
<b>B</b>	Welding	<input type="checkbox"/>
<b>C</b>	Drawing	<input type="checkbox"/>
<b>D</b>	Machining	<input type="checkbox"/>

(b) In houses, copper tube is used for:

(1)

<b>A</b>	kitchen cabinets	<input type="checkbox"/>
<b>B</b>	electrical fittings	<input type="checkbox"/>
<b>C</b>	window frames	<input type="checkbox"/>
<b>D</b>	heating installations	<input type="checkbox"/>

(Total for Question 22 = 2 marks)

23 Used glass bottles are separated from other household rubbish because they are:

<b>A</b>	repairable	<input type="checkbox"/>
<b>B</b>	reliable	<input type="checkbox"/>
<b>C</b>	recyclable	<input type="checkbox"/>
<b>D</b>	retrievable	<input type="checkbox"/>

(Total for Question 23 = 1 mark)



24 (a) Polythene containers are safe to put food in because they are:

(1)

A	mechanically rigid	<input type="checkbox"/>
B	non-toxic	<input type="checkbox"/>
C	dimensionally stable	<input type="checkbox"/>
D	wear resistant	<input type="checkbox"/>

(b) Which industry sector makes polythene and other plastics materials?

(1)

A	Pharmaceutical	<input type="checkbox"/>
B	Aeronautical	<input type="checkbox"/>
C	Agricultural	<input type="checkbox"/>
D	Petro-chemical	<input type="checkbox"/>

(c) The process used to join the sheets of wood together to make plywood is:

(1)

A	gluing	<input type="checkbox"/>
B	forging	<input type="checkbox"/>
C	casting	<input type="checkbox"/>
D	plating	<input type="checkbox"/>

(Total for Question 24 = 3 marks)

25 Which engineering industry sector designs telephone networks?

A	Communications	<input type="checkbox"/>
B	Aerospace	<input type="checkbox"/>
C	Automotive	<input type="checkbox"/>
D	Mechanical	<input type="checkbox"/>

(Total for Question 25 = 1 mark)



26 'Satellites are a benefit to society'.

Which **one** of the following is **not** a benefit?

<b>A</b>	Navigational aid	<input type="checkbox"/>
<b>B</b>	Data transfer	<input type="checkbox"/>
<b>C</b>	Security systems	<input type="checkbox"/>
<b>D</b>	Energy transfer	<input type="checkbox"/>

(Total for Question 26 = 1 mark)

27 Which method of presentation would be used to present a new design of car seat to a manufacturer?

<b>A</b>	Written report	<input type="checkbox"/>
<b>B</b>	Flow chart	<input type="checkbox"/>
<b>C</b>	Mind map	<input type="checkbox"/>
<b>D</b>	3D drawing	<input type="checkbox"/>

(Total for Question 27 = 1 mark)

28 Engineers often work in teams to:

<b>A</b>	make best use of the skills of the group	<input type="checkbox"/>
<b>B</b>	use up time when machines are being repaired	<input type="checkbox"/>
<b>C</b>	make friends easily across the company	<input type="checkbox"/>
<b>D</b>	create a competitive attitude	<input type="checkbox"/>

(Total for Question 28 = 1 mark)

29 Which kind of pump is used to create the water pressure in domestic water systems?

<b>A</b>	Air	<input type="checkbox"/>
<b>B</b>	Hydraulic	<input type="checkbox"/>
<b>C</b>	Lubrication	<input type="checkbox"/>
<b>D</b>	Gas	<input type="checkbox"/>

(Total for Question 29 = 1 mark)



30



(a) A benefit of using thermostatic radiator valves in homes is that they:

(1)

<b>A</b>	save energy	<input type="checkbox"/>
<b>B</b>	generate energy	<input type="checkbox"/>
<b>C</b>	recycle energy	<input type="checkbox"/>
<b>D</b>	re-use energy	<input type="checkbox"/>

(b) What type of engineer designs thermostatic radiator valves?

(1)

<b>A</b>	Chemical	<input type="checkbox"/>
<b>B</b>	Mechanical	<input type="checkbox"/>
<b>C</b>	Electronic	<input type="checkbox"/>
<b>D</b>	Environmental	<input type="checkbox"/>

(c) What category of person would install thermostatic radiator valves?

(1)

<b>A</b>	Craft	<input type="checkbox"/>
<b>B</b>	Managerial	<input type="checkbox"/>
<b>C</b>	Administrative	<input type="checkbox"/>
<b>D</b>	Driver	<input type="checkbox"/>



(d) The adjustment knob on a thermostatic radiator valve used in houses is made from:

(1)

<b>A</b>	concrete	<input type="checkbox"/>
<b>B</b>	wood	<input type="checkbox"/>
<b>C</b>	glass	<input type="checkbox"/>
<b>D</b>	plastics	<input type="checkbox"/>

(Total for Question 30 = 4 marks)

**TOTAL FOR PAPER = 45 MARKS**



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