

Write your name here

Surname

Other names

**Edexcel**  
**Principal Learning**

Centre Number

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Candidate Number

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# Engineering

Level 1

Unit 1: Introducing the Engineering World

Wednesday 16 May 2012 – Morning

Time: 1 hour

Paper Reference

**EG101/01**

You do not need any other materials.

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.

## 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.

Turn over ►

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PEARSON

Answer ALL questions.

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

1 Which industry sector designs and manufactures aircraft engines?

A	Aerospace	<input type="checkbox"/>
B	Marine	<input type="checkbox"/>
C	Nuclear	<input type="checkbox"/>
D	Communications	<input type="checkbox"/>

(Total for Question 1 = 1 mark)

2 Hydroelectricity is generated by the movement of:

A	air	<input type="checkbox"/>
B	wind	<input type="checkbox"/>
C	water	<input type="checkbox"/>
D	fire	<input type="checkbox"/>

(Total for Question 2 = 1 mark)

3 Which type of engineer would develop a new sonar system?

A	Marine	<input type="checkbox"/>
B	Electronic	<input type="checkbox"/>
C	Nuclear	<input type="checkbox"/>
D	Mechanical	<input type="checkbox"/>

(Total for Question 3 = 1 mark)

4 An engineering process completed by a turner is called:

A	fabricating	<input type="checkbox"/>
B	casting	<input type="checkbox"/>
C	machining	<input type="checkbox"/>
D	forging	<input type="checkbox"/>

(Total for Question 4 = 1 mark)



5 Which **one** of the following processes would be used to join electronic components together?

A	Soldering	<input type="checkbox"/>
B	Moulding	<input type="checkbox"/>
C	Milling	<input type="checkbox"/>
D	Sintering	<input type="checkbox"/>

(Total for Question 5 = 1 mark)

6 An engineering team is likely to consist of:

A	personnel managers	<input type="checkbox"/>
B	logistics officers	<input type="checkbox"/>
C	administration apprentices	<input type="checkbox"/>
D	technical staff	<input type="checkbox"/>

(Total for Question 6 = 1 mark)

7 Which **one** of the following is an example of 'green' legislation?

A	The Health and Safety at Work Act	<input type="checkbox"/>
B	The Employment Rights Act	<input type="checkbox"/>
C	The Electronic Communications Act	<input type="checkbox"/>
D	The Environmental Protection Act	<input type="checkbox"/>

(Total for Question 7 = 1 mark)

8 An oil spill at sea would **definitely**:

A	improve energy efficiency	<input type="checkbox"/>
B	affect local wildlife	<input type="checkbox"/>
C	deplete bio-fuels	<input type="checkbox"/>
D	increase emission limits	<input type="checkbox"/>

(Total for Question 8 = 1 mark)



9 Cavity wall insulation is designed to:

A	use wind energy	<input type="checkbox"/>
B	reduce heat loss	<input type="checkbox"/>
C	stop solar glare	<input type="checkbox"/>
D	improve radiator efficiency	<input type="checkbox"/>

(Total for Question 9 = 1 mark)

10 Which **one** of the following is a 'zero emissions' energy source?

A	Clean coal power	<input type="checkbox"/>
B	Hydrogen fuel cell	<input type="checkbox"/>
C	Liquid natural gas	<input type="checkbox"/>
D	Waste wood burning	<input type="checkbox"/>

(Total for Question 10 = 1 mark)

11 Which **one** of the following is **not** an engineering sector?

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

(Total for Question 11 = 1 mark)

12 Which process is used in the manufacture of a car engine block?

A	Fabrication	<input type="checkbox"/>
B	Casting	<input type="checkbox"/>
C	Welding	<input type="checkbox"/>
D	Curing	<input type="checkbox"/>

(Total for Question 12 = 1 mark)



13 Personnel who perform routine maintenance tasks on household gas boilers are known as:

A	repair technicians	<input type="checkbox"/>
B	plumbing apprentices	<input type="checkbox"/>
C	meter readers	<input type="checkbox"/>
D	service engineers	<input type="checkbox"/>

(Total for Question 13 = 1 mark)

14 Which engineering sector designs and constructs bridges?

A	Telecommunications	<input type="checkbox"/>
B	Civil	<input type="checkbox"/>
C	Environmental	<input type="checkbox"/>
D	Marine	<input type="checkbox"/>

(Total for Question 14 = 1 mark)

15 Developments in technology have changed the way engineers communicate. One technology is video conference calling.

Its **main** advantage is:

A	people who speak different languages can communicate	<input type="checkbox"/>
B	people do not have to travel to a meeting	<input type="checkbox"/>
C	it is always quicker to set up a meeting	<input type="checkbox"/>
D	it is free to use	<input type="checkbox"/>

(Total for Question 15 = 1 mark)

16 When presenting ideas to a large audience the **best** approach is to:

A	talk to the audience using a microphone only	<input type="checkbox"/>
B	use an audiovisual Power Point presentation	<input type="checkbox"/>
C	hand out detailed information packs for everyone to read	<input type="checkbox"/>
D	move around and speak to everyone separately	<input type="checkbox"/>

(Total for Question 16 = 1 mark)



17 Electronic tagging devices are often used in clothing shops.

The reason for this is they:

A	reduce the number of returned items	<input type="checkbox"/>
B	enable easier stock taking	<input type="checkbox"/>
C	reduce the number of thefts	<input type="checkbox"/>
D	enable monitoring of items sold	<input type="checkbox"/>

(Total for Question 17 = 1 mark)

18 Which technology do weather forecasters rely on to predict the weather?

A	Radar	<input type="checkbox"/>
B	Materials	<input type="checkbox"/>
C	Tooling	<input type="checkbox"/>
D	Distribution	<input type="checkbox"/>

(Total for Question 18 = 1 mark)

19 The **main** advantage of using bio-fuels is that they:

A	are not renewable	<input type="checkbox"/>
B	are cheap to manufacture	<input type="checkbox"/>
C	are available at all fuels stations in the UK	<input type="checkbox"/>
D	help to reduce the emission of greenhouse gases	<input type="checkbox"/>

(Total for Question 19 = 1 mark)

20 Which **one** of the following is **not** an example of a renewable power energy source?

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

(Total for Question 20 = 1 mark)



21



**Figure 1**

Figure 1 shows a freight storage container.

Which industry sector manufactures freight storage containers?

<b>A</b>	Civil	<input type="checkbox"/>
<b>B</b>	Nuclear	<input type="checkbox"/>
<b>C</b>	Mechanical	<input type="checkbox"/>
<b>D</b>	Chemical	<input type="checkbox"/>

**(Total for Question 21 = 1 mark)**



P 3 9 9 6 9 A 0 7 1 6



Figure 2

Figure 2 shows a folding bicycle.

(a) Which **one** of the following is **not** a benefit of a folding bicycle?

(1)

<b>A</b>	It can be safely ridden cross-country	<input type="checkbox"/>
<b>B</b>	It can be taken onto public transport	<input type="checkbox"/>
<b>C</b>	It can be stored in a small space	<input type="checkbox"/>
<b>D</b>	It can be carried easily	<input type="checkbox"/>

(b) What type of engineer would design the bicycle folding mechanisms?

(1)

<b>A</b>	Marine	<input type="checkbox"/>
<b>B</b>	Electrical	<input type="checkbox"/>
<b>C</b>	Mechanical	<input type="checkbox"/>
<b>D</b>	Civil	<input type="checkbox"/>

(c) What type of worker would build a folding bicycle?

(1)

<b>A</b>	Craft	<input type="checkbox"/>
<b>B</b>	Support	<input type="checkbox"/>
<b>C</b>	Administrative	<input type="checkbox"/>
<b>D</b>	Logistics	<input type="checkbox"/>

(d) The frame of a folding bicycle is made from:

(1)

<b>A</b>	marine plywood	<input type="checkbox"/>
<b>B</b>	cast iron	<input type="checkbox"/>
<b>C</b>	phosphor bronze	<input type="checkbox"/>
<b>D</b>	mild steel	<input type="checkbox"/>

(Total for Question 22 = 4 marks)



23



Figure 3

Figure 3 shows a helicopter parked on a helipad.

(a) Building a helipad on top of a skyscraper is an example of:

(1)

<b>A</b>	bio engineering	<input type="checkbox"/>
<b>B</b>	marine engineering	<input type="checkbox"/>
<b>C</b>	civil engineering	<input type="checkbox"/>
<b>D</b>	aerospace engineering	<input type="checkbox"/>

(b) Engineering staff that carry out maintenance tasks on a helicopter, such as replacing rotor blades, are classified as:

(1)

<b>A</b>	incorporated	<input type="checkbox"/>
<b>B</b>	unskilled	<input type="checkbox"/>
<b>C</b>	chartered	<input type="checkbox"/>
<b>D</b>	technical	<input type="checkbox"/>

(Total for Question 23 = 2 marks)



24



Figure 4

Figure 4 shows a plastic milk container.

(a) A plastic milk container is made from:

(1)

A	high density polyethylene	<input type="checkbox"/>
B	low density polyethylene	<input type="checkbox"/>
C	unplasticised polyvinyl chloride	<input type="checkbox"/>
D	elastic formed acrylic	<input type="checkbox"/>

(b) The main process used for making a plastic milk container is:

(1)

A	turning	<input type="checkbox"/>
B	compression moulding	<input type="checkbox"/>
C	honing	<input type="checkbox"/>
D	blow moulding	<input type="checkbox"/>

(c) The **main** advantage of using plastic milk containers is that they are:

(1)

A	biodegradable	<input type="checkbox"/>
B	recyclable	<input type="checkbox"/>
C	permeable	<input type="checkbox"/>
D	machinable	<input type="checkbox"/>

(Total for Question 24 = 3 marks)



25



Figure 5

Figure 5 shows a solar-powered street lamp.

(a) A solar-powered street lamp benefits society because it:

(1)

<b>A</b>	looks contemporary	<input type="checkbox"/>
<b>B</b>	is easily replaceable	<input type="checkbox"/>
<b>C</b>	requires no maintenance	<input type="checkbox"/>
<b>D</b>	uses renewable resources	<input type="checkbox"/>

(b) Which industry sector manufactures solar panels?

(1)

<b>A</b>	Communications	<input type="checkbox"/>
<b>B</b>	Automotive	<input type="checkbox"/>
<b>C</b>	Energy	<input type="checkbox"/>
<b>D</b>	Control	<input type="checkbox"/>

(c) Solar power is a technology that is:

(1)

<b>A</b>	sustainable	<input type="checkbox"/>
<b>B</b>	accountable	<input type="checkbox"/>
<b>C</b>	recyclable	<input type="checkbox"/>
<b>D</b>	biodegradable	<input type="checkbox"/>

(Total for Question 25 = 3 marks)



26 (a) When completing an engineering project, good teamwork is likely to result in: (1)

A	inaccurate assembly drawings	<input type="checkbox"/>
B	incomplete assembly instructions	<input type="checkbox"/>
C	shorter assembly times	<input type="checkbox"/>
D	longer assembly lines	<input type="checkbox"/>

(b) A large team of engineers work on the same project in various locations.

This situation will **not** help them to:

(1)

A	communicate via email	<input type="checkbox"/>
B	identify testing methods	<input type="checkbox"/>
C	meet in person	<input type="checkbox"/>
D	use new technologies	<input type="checkbox"/>

(Total for Question 26 = 2 marks)

27 (a) An oblique view is an example of a: (1)

A	games technology	<input type="checkbox"/>
B	manufacturing technology	<input type="checkbox"/>
C	polishing method	<input type="checkbox"/>
D	presentation method	<input type="checkbox"/>

(b) The **most** suitable presentation method when summarising an engineering sequence of operations is a:

(1)

A	venn diagram	<input type="checkbox"/>
B	flow chart	<input type="checkbox"/>
C	mind map	<input type="checkbox"/>
D	waveform graph	<input type="checkbox"/>

(Total for Question 27 = 2 marks)



28 (a) A member of staff who controls a CNC machine tool is called a(n):

(1)

<b>A</b>	designer	<input type="checkbox"/>
<b>B</b>	planner	<input type="checkbox"/>
<b>C</b>	manager	<input type="checkbox"/>
<b>D</b>	operator	<input type="checkbox"/>

(b) The **main** environmental benefit of using a CNC machine tool is:

(1)

<b>A</b>	accurate tooling	<input type="checkbox"/>
<b>B</b>	increased maintenance	<input type="checkbox"/>
<b>C</b>	skilled labour	<input type="checkbox"/>
<b>D</b>	reduced waste	<input type="checkbox"/>

(Total for Question 28 = 2 marks)





**Figure 6**

Figure 6 shows a smart phone.

(a) Which engineering sector is responsible for the design and manufacture of smart phones?

(1)

<b>A</b>	Electronic	<input type="checkbox"/>
<b>B</b>	Telecommunication	<input type="checkbox"/>
<b>C</b>	Music	<input type="checkbox"/>
<b>D</b>	American	<input type="checkbox"/>

(b) The engineering team responsible for technical drawings of a smart phone is:

(1)

<b>A</b>	marketing	<input type="checkbox"/>
<b>B</b>	production	<input type="checkbox"/>
<b>C</b>	design	<input type="checkbox"/>
<b>D</b>	quality	<input type="checkbox"/>

(c) Which engineering role would be involved in the manufacture of a smart phone?

(1)

<b>A</b>	Test engineer	<input type="checkbox"/>
<b>B</b>	Automotive engineer	<input type="checkbox"/>
<b>C</b>	Civil engineer	<input type="checkbox"/>
<b>D</b>	Sound recording technician	<input type="checkbox"/>

**(Total for Question 29 = 3 marks)**



30 (a) Construction building sites can affect the environment in many ways.

Which **one** of the following is **not** considered to have an environmental impact on society?

(1)

<b>A</b>	Noise pollution	<input type="checkbox"/>
<b>B</b>	Increased job opportunities	<input type="checkbox"/>
<b>C</b>	Waste disposal	<input type="checkbox"/>
<b>D</b>	Land contamination	<input type="checkbox"/>

(b)



Figure 7

Figure 7 shows a waste disposal symbol.

The symbol indicates:

(1)

<b>A</b>	recyclable aluminium	<input type="checkbox"/>
<b>B</b>	aluminium not allowed	<input type="checkbox"/>
<b>C</b>	only aluminium cans	<input type="checkbox"/>
<b>D</b>	no aluminium cans allowed	<input type="checkbox"/>

(c) Civil engineers have to consider where to dispose of waste from building sites because:

(1)

<b>A</b>	lots of construction companies have gone out of business	<input type="checkbox"/>
<b>B</b>	they could be prosecuted for not obeying legislation	<input type="checkbox"/>
<b>C</b>	local wildlife may be affected	<input type="checkbox"/>
<b>D</b>	buildings will not be safe	<input type="checkbox"/>

(Total for Question 30 = 3 marks)

TOTAL FOR PAPER = 45 MARKS





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