

Centre No.						Paper Reference	Surname	Initial(s)
Candidate No.						<b>EG101/01</b>	Signature	

Paper Reference(s)

**EG101/01**

**Edexcel**

**Principal Learning**

**Engineering**

Level 1

Unit 1: Introducing the Engineering  
World

Thursday 14 May 2009 – Morning

Time: 1 hour

Examiner's use only

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Team Leader's use only

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**Materials required for examination**

Nil

**Items included with question papers**

Nil

**Instructions to Candidates**

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature. Check that you have the correct question paper.

Answer **ALL** the questions.

All of the 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 (☒).

**Information for Candidates**

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

There are 30 questions in this question paper. The total mark for this paper is 45.

There are 24 pages in this question paper. Any blank pages are indicated.

**Advice to Candidates**

You are reminded of the importance of clear and careful presentation in your answers. You are advised to read the questions carefully.

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Answer **ALL** the questions in the spaces provided.

1. The picture shows a car. Which engineering sector would manufacture this product?



Figure 1

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

(Total 1 mark)

Q1

2. Homes in the UK receive their main gas supply mostly:

A	in canisters	<input type="checkbox"/>
B	by tankers	<input type="checkbox"/>
C	from underground pipes	<input type="checkbox"/>
D	using petrol stations	<input type="checkbox"/>

(Total 1 mark)

Q2



Leave blank

3. Which industry sector makes cosmetic products, such as hair gel and suntan lotion?

A	Chemical	<input type="checkbox"/>
B	Food	<input type="checkbox"/>
C	Marine	<input type="checkbox"/>
D	Automotive	<input type="checkbox"/>

Q3

(Total 1 mark)

4. Synthetic materials, such as Gortex, are used in waterproof jackets. These materials are classified as:

A	ceramic	<input type="checkbox"/>
B	polymeric	<input type="checkbox"/>
C	metallic	<input type="checkbox"/>
D	organic	<input type="checkbox"/>

Q4

(Total 1 mark)

5. When senior managers hold meetings to inform large groups of staff about future plans, they are most likely to use:

A	whiteboards	<input type="checkbox"/>
B	flipcharts	<input type="checkbox"/>
C	posters	<input type="checkbox"/>
D	PowerPoint presentations	<input type="checkbox"/>

Q5

(Total 1 mark)



Leave blank

6. Which of the following devices use Global Positioning Systems (GPS)?

A	Televisions	<input type="checkbox"/>
B	Digital cameras	<input type="checkbox"/>
C	Satellite navigation systems	<input type="checkbox"/>
D	MP3 players	<input type="checkbox"/>

Q6

(Total 1 mark)

7. Electronic circuits used in control engineering use \_\_\_\_\_ to achieve control.

A	washback	<input type="checkbox"/>
B	rollback	<input type="checkbox"/>
C	splashback	<input type="checkbox"/>
D	feedback	<input type="checkbox"/>

Q7

(Total 1 mark)

8. Welding metal together is an example of a:

A	fabrication process	<input type="checkbox"/>
B	casting process	<input type="checkbox"/>
C	coating process	<input type="checkbox"/>
D	forging process	<input type="checkbox"/>

Q8

(Total 1 mark)



Leave  
blank

9. (a) Which of the following is a Greenhouse gas?

A	Hydrogen Peroxide	<input type="checkbox"/>
B	Neon	<input type="checkbox"/>
C	Carbon Dioxide	<input type="checkbox"/>
D	Oxygen	<input type="checkbox"/>

(1)

(b) Making paper uses trees as a raw material. If a manufacturer plants a new tree for each one they use, the process is considered environmentally:

A	sustainable	<input type="checkbox"/>
B	retainable	<input type="checkbox"/>
C	constrainable	<input type="checkbox"/>
D	attainable	<input type="checkbox"/>

(1)

(Total 2 marks)

Q9

10. Fossil fuels, such as coal, are:

A	infinite	<input type="checkbox"/>
B	finite	<input type="checkbox"/>
C	renewable	<input type="checkbox"/>
D	recyclable	<input type="checkbox"/>

(Total 1 mark)

Q10



Leave  
blank

11. Remotely Operated Vehicles (ROV) are suitable for:

A	research on the seabed	<input type="checkbox"/>
B	public transport on the roads	<input type="checkbox"/>
C	passenger trains on the railway	<input type="checkbox"/>
D	charter air flights from UK airports	<input type="checkbox"/>

Q11

(Total 1 mark)

12. The energy use of houses is improved by double glazing because it:

A	stops heat escaping	<input type="checkbox"/>
B	insulates against noise	<input type="checkbox"/>
C	uses more glass	<input type="checkbox"/>
D	absorbs heat from outside	<input type="checkbox"/>

Q12

(Total 1 mark)

13. Which of the following engineering processes is used to make metal drain covers?

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

Q13

(Total 1 mark)



14. More wind turbines are being built in the UK. Wind turbines are **not** usually sited:

A	out at sea	<input checked="" type="checkbox"/>
B	on open ground	<input checked="" type="checkbox"/>
C	on high ground	<input checked="" type="checkbox"/>
D	in sheltered valleys	<input checked="" type="checkbox"/>

(Total 1 mark)

Leave  
blank

Q14



H 3 5 7 5 3 A 0 7 2 4

7

Turn over

15.



Electricity cables

The picture above shows an electricity pylon, many of which can be seen across the UK.

(a) The network of pylons is known as the:

A	National Arrangement	<input checked="" type="checkbox"/>
B	National System	<input checked="" type="checkbox"/>
C	National Grid	<input checked="" type="checkbox"/>
D	National Circuit	<input checked="" type="checkbox"/>

(1)

(b) The electricity cables shown above are made from:

A	copper	<input checked="" type="checkbox"/>
B	glass fibre optics	<input checked="" type="checkbox"/>
C	steel	<input checked="" type="checkbox"/>
D	aluminium reinforced with steel	<input checked="" type="checkbox"/>

(1)





Leave  
blank

(c) Which energy source is **most** used for generating the electric current supplied to the UK?

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

(1)

(d) Pylons are designed by:

A	mechanical engineers	<input type="checkbox"/>
B	agricultural engineers	<input type="checkbox"/>
C	marine engineers	<input type="checkbox"/>
D	aeronautical engineers	<input type="checkbox"/>

(1)

Q15

(Total 4 marks)



16.



The picture above shows a typical UK motorway.

(a) Building motorways is an example of:

A	civil engineering	<input checked="" type="checkbox"/>
B	automotive engineering	<input checked="" type="checkbox"/>
C	marine engineering	<input checked="" type="checkbox"/>
D	production engineering	<input checked="" type="checkbox"/>

(1)

(b) Motorways help the UK economy **mainly** by:

A	having more lanes than ordinary roads	<input checked="" type="checkbox"/>
B	charging tolls for use	<input checked="" type="checkbox"/>
C	making it easier to move goods around	<input checked="" type="checkbox"/>
D	selling goods at motorway services	<input checked="" type="checkbox"/>

(1)



Leave  
blank

(c) Personnel who perform maintenance tasks on motorway signs, e.g. changing light bulbs, are classified as:

A	technical	<input checked="" type="checkbox"/>
B	unskilled	<input checked="" type="checkbox"/>
C	professional	<input checked="" type="checkbox"/>
D	clerical	<input checked="" type="checkbox"/>

(1)

Q16

(Total 3 marks)

11



Turn over

17.



The picture shows a typical wheat field.

(a) Wheat can be used to make which of the following fuels?

A	Bio-hazard	<input checked="" type="checkbox"/>
B	Bio-cereal	<input checked="" type="checkbox"/>
C	Bio-compost	<input checked="" type="checkbox"/>
D	Bio-diesel	<input checked="" type="checkbox"/>

(1)

(b) Which process is used to turn wheat into a fuel?

A	Chemical	<input checked="" type="checkbox"/>
B	Mechanical	<input checked="" type="checkbox"/>
C	Electrical	<input checked="" type="checkbox"/>
D	Hydraulic	<input checked="" type="checkbox"/>

(1)

Q17

(Total 2 marks)



18. Solar panel



The picture shows a building with solar panels on the roof.

(a) Solar panels convert the sun's rays into:

A	wave energy	<input type="checkbox"/>
B	electrical energy	<input type="checkbox"/>
C	kinetic energy	<input type="checkbox"/>
D	nuclear energy	<input type="checkbox"/>

(1)

(b) Solar panels are installed by a:

A	chartered engineer	<input type="checkbox"/>
B	craft person	<input type="checkbox"/>
C	personnel officer	<input type="checkbox"/>
D	clerical officer	<input type="checkbox"/>

(1)

(c) Hot water pipes in houses are insulated by:

A	polystyrene foam	<input type="checkbox"/>
B	chromium plating	<input type="checkbox"/>
C	acrylic paint	<input type="checkbox"/>
D	sheet metal	<input type="checkbox"/>

(1)

(Total 3 marks)

Q18



H 3 5 7 5 3 A 0 1 3 2 4

19.



The bottles above are used for soft drinks and often display the symbol shown. Bottles are often made from a form of polythene.

(a) The symbol indicates that the bottles are:

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

(1)

(b) Plastic bottles should be disposed of by:

A	separating them into recycling bins	<input type="checkbox"/>
B	burying them in landfill sites	<input type="checkbox"/>
C	burning them in a dustbin	<input type="checkbox"/>
D	putting them in a composter	<input type="checkbox"/>

(1)

(c) The main reason polythene is used for food and drink containers is because it is:

A	rigid	<input type="checkbox"/>
B	non-toxic	<input type="checkbox"/>
C	stable	<input type="checkbox"/>
D	waterproof	<input type="checkbox"/>

(1)



Leave  
blank

(d) Polythene and other plastics are by-products of which industry sector?

A	Mining	<input type="checkbox"/>
B	Electrical	<input type="checkbox"/>
C	Agricultural	<input type="checkbox"/>
D	Oil	<input type="checkbox"/>

(1)

Q19

(Total 4 marks)



20.



The picture shows a telephone mast, one of many that form a network across the UK.

(a) Telephone technology is within which engineering industry sector?

A	Communications	<input checked="" type="checkbox"/>
B	Aerospace	<input type="checkbox"/>
C	Petro-chemical	<input type="checkbox"/>
D	Mechanical	<input type="checkbox"/>

(1)

(b) The use of telephone masts causes which form of pollution?

A	Air	<input type="checkbox"/>
B	Noise	<input checked="" type="checkbox"/>
C	Water	<input type="checkbox"/>
D	Visual	<input type="checkbox"/>

(1)





Leave  
blank

(c) The most important reason why mobile phones should **not** be disposed of in landfill sites is because they:

A	are easily incinerated	<input checked="" type="checkbox"/>
B	contain plastic parts	<input checked="" type="checkbox"/>
C	have a good resale value	<input checked="" type="checkbox"/>
D	contain poisonous metals such as mercury	<input checked="" type="checkbox"/>

(1)

Q20

(Total 3 marks)

17



Turn over

21.



The pictures above show, from left to right, a reservoir, a water treatment plant and a domestic tap.

(a) The supply of water to homes and factories is an example of:

A	marine engineering	<input type="checkbox"/>
B	chemical engineering	<input type="checkbox"/>
C	agricultural engineering	<input type="checkbox"/>
D	civil engineering	<input type="checkbox"/>

(1)

(b) The main reason why reservoirs are built is to:

A	store freshwater	<input type="checkbox"/>
B	treat contaminated water	<input type="checkbox"/>
C	provide sailing facilities	<input type="checkbox"/>
D	improve the countryside	<input type="checkbox"/>

(1)

Q21

(Total 2 marks)



Leave  
blank

22. Earth moving equipment, e.g. bulldozers, is designed by:

A	agricultural engineers	<input type="checkbox"/>
B	civil engineers	<input type="checkbox"/>
C	mechanical engineers	<input type="checkbox"/>
D	environmental engineers	<input type="checkbox"/>

Q22

(Total 1 mark)

23. Polymers are classified as \_\_\_\_\_ materials.

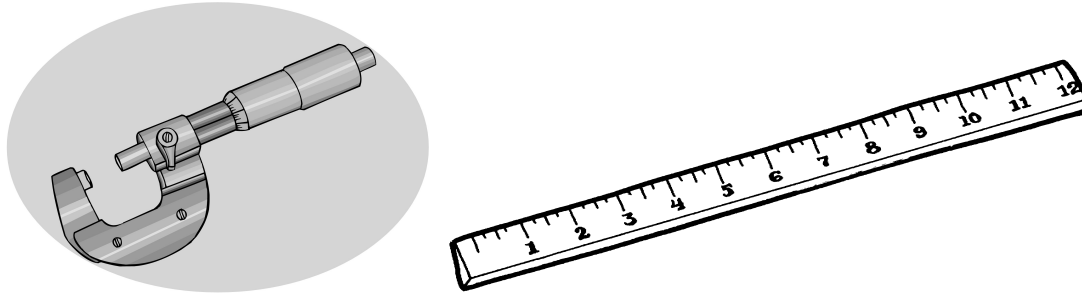
A	conducting	<input type="checkbox"/>
B	magnetic	<input type="checkbox"/>
C	insulating	<input type="checkbox"/>
D	semi-conducting	<input type="checkbox"/>

Q23

(Total 1 mark)



24.



The pictures above show measuring instruments used in engineering.

Micrometers and rules are used by:

A	managers	<input type="checkbox"/>
B	inspectors	<input type="checkbox"/>
C	designers	<input type="checkbox"/>
D	accountants	<input type="checkbox"/>

(Total 1 marks)

Q24

25. Legally, refrigerators have to be disposed of correctly because:

A	they have plastic parts	<input type="checkbox"/>
B	the outside has a paint finish	<input type="checkbox"/>
C	the case is made from steel sheet	<input type="checkbox"/>
D	they use a gas in their cooling system	<input type="checkbox"/>

(Total 1 mark)

Q25



Leave  
blank

26. Which of the following items is **not** covered by The Waste Electrical and Electronic Equipment Regulations 2006?

A	Microwave ovens	<input type="checkbox"/>
B	Electric kettles	<input type="checkbox"/>
C	Baking trays	<input type="checkbox"/>
D	Digital kitchen clocks	<input type="checkbox"/>

Q26

(Total 1 mark)

27. Which one of the following consumes fossil fuel reserves?

A	Solar power	<input type="checkbox"/>
B	Wave power	<input type="checkbox"/>
C	Nuclear power	<input type="checkbox"/>
D	Diesel power	<input type="checkbox"/>

Q27

(Total 1 mark)

28. Lagging is wrapped around household hot water pipes because it:

A	radiates heat	<input type="checkbox"/>
B	convects heat	<input type="checkbox"/>
C	conserves heat	<input type="checkbox"/>
D	generates heat	<input type="checkbox"/>

Q28

(Total 1 mark)



Leave  
blank

29. In the world of engineering, who would need the highest level of qualifications?

A	Professional engineer	<input type="checkbox"/>
B	Technician engineer	<input type="checkbox"/>
C	Trainee	<input type="checkbox"/>
D	Operative	<input type="checkbox"/>

Q29

(Total 1 mark)

30. Electrical engineers regularly inspect live overhead power cables; the cables carry 400 000 volts. Which of the following would be used to gain access to the cables?

A	helicopter	<input type="checkbox"/>
B	mobile crane	<input type="checkbox"/>
C	scaffolding tower	<input type="checkbox"/>
D	ladder	<input type="checkbox"/>

Q30

(Total 1 mark)

**TOTAL FOR PAPER: 45 MARKS**

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