

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 11 January 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 GPS is an abbreviation of:

A	Global Positioning System	<input type="checkbox"/>
B	Global Placing Structure	<input type="checkbox"/>
C	Generic Placement Status	<input type="checkbox"/>
D	Ground Pointing Satellite	<input type="checkbox"/>

(Total for Question 1 = 1 mark)

2 The waste fuel from a nuclear power station is:

A	radioactive	<input type="checkbox"/>
B	proactive	<input type="checkbox"/>
C	useless	<input type="checkbox"/>
D	harmless	<input type="checkbox"/>

(Total for Question 2 = 1 mark)

3 Which **one** of the following would be used in a control engineering system?

A	Microstat	<input type="checkbox"/>
B	Thermostat	<input type="checkbox"/>
C	Thermometer	<input type="checkbox"/>
D	Micrometer	<input type="checkbox"/>

(Total for Question 3 = 1 mark)

4 An experienced engineer who mainly works with hand tools is known as a(n):

A	craftsman	<input type="checkbox"/>
B	operative	<input type="checkbox"/>
C	manager	<input type="checkbox"/>
D	apprentice	<input type="checkbox"/>

(Total for Question 4 = 1 mark)



5 Which **one** of the following is a professional civil engineering role?

A	Plater	<input type="checkbox"/>
B	Welder	<input type="checkbox"/>
C	Surveyor	<input type="checkbox"/>
D	Plumber	<input type="checkbox"/>

(Total for Question 5 = 1 mark)

6 Which **one** of the following is a renewable material?

A	Polystyrene	<input type="checkbox"/>
B	Aluminium	<input type="checkbox"/>
C	Beech	<input type="checkbox"/>
D	Glass	<input type="checkbox"/>

(Total for Question 6 = 1 mark)

7 Items such as MP3 players can be made pocket sized because they are controlled by:

A	microprocessors	<input type="checkbox"/>
B	microphones	<input type="checkbox"/>
C	micrometers	<input type="checkbox"/>
D	microwaves	<input type="checkbox"/>

(Total for Question 7 = 1 mark)

8 Which **one** of the following is **not** an environmental impact of an oil spill at sea?

A	Reduced tourism	<input type="checkbox"/>
B	Water pollution	<input type="checkbox"/>
C	Wildlife is injured	<input type="checkbox"/>
D	Beaches are closed	<input type="checkbox"/>

(Total for Question 8 = 1 mark)



9 Engineers from which sector would produce items such as household cleaning liquids?

A	Chemical	<input type="checkbox"/>
B	Building services	<input type="checkbox"/>
C	Marine	<input type="checkbox"/>
D	Water management	<input type="checkbox"/>

(Total for Question 9 = 1 mark)

10 Which **one** of the following is **not** described as a utility?

A	Water	<input type="checkbox"/>
B	Electricity	<input type="checkbox"/>
C	Broadband	<input type="checkbox"/>
D	Gas	<input type="checkbox"/>

(Total for Question 10 = 1 mark)

11 Which **one** of the following types of energy source is considered sustainable?

A	Solar	<input type="checkbox"/>
B	Coal	<input type="checkbox"/>
C	Gas	<input type="checkbox"/>
D	Oil	<input type="checkbox"/>

(Total for Question 11 = 1 mark)

12 A car ferry would be manufactured by which engineering sector?

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

(Total for Question 12 = 1 mark)



13 Which method of disposal leaves waste buried in the ground?

A	Landfill	<input type="checkbox"/>
B	Incineration	<input type="checkbox"/>
C	Digestion	<input type="checkbox"/>
D	Gasification	<input type="checkbox"/>

(Total for Question 13 = 1 mark)

14 In the UK there is legislation to limit:

A	carbon emissions	<input type="checkbox"/>
B	carbon dating	<input type="checkbox"/>
C	carbon copying	<input type="checkbox"/>
D	carbon steel	<input type="checkbox"/>

(Total for Question 14 = 1 mark)

15 Gloss paints are manufactured by which engineering sector?

A	Chemical	<input type="checkbox"/>
B	Building services	<input type="checkbox"/>
C	Structural	<input type="checkbox"/>
D	Energy sources	<input type="checkbox"/>

(Total for Question 15 = 1 mark)

16 Glass bottles are separated from normal household waste for:

A	recycling	<input type="checkbox"/>
B	reducing	<input type="checkbox"/>
C	lean manufacture	<input type="checkbox"/>
D	carbon offsetting	<input type="checkbox"/>

(Total for Question 16 = 1 mark)



17 The energy efficiency of homes can be improved by:

A	increasing the amount of insulation	<input type="checkbox"/>
B	decreasing the amount of insulation	<input type="checkbox"/>
C	increasing the cost of electricity	<input type="checkbox"/>
D	distributing the cost of electricity	<input type="checkbox"/>

(Total for Question 17 = 1 mark)

18



Figure 1

Which sustainable energy source is shown in Figure 1?

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

(Total for Question 18 = 1 mark)

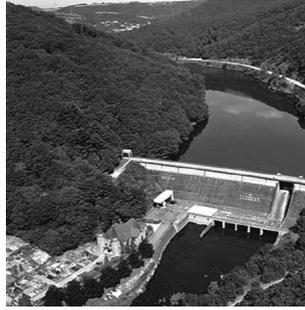
19 The **main** advantage of lean manufacturing is:

A	productivity is decreased	<input type="checkbox"/>
B	less waste is generated	<input type="checkbox"/>
C	less workers are required	<input type="checkbox"/>
D	quality checks can be reduced	<input type="checkbox"/>

(Total for Question 19 = 1 mark)



20



Hydroelectric power is an environmentally sustainable way of generating electricity because power plants:

A	have to be built in low level valleys away from towns and cities	<input type="checkbox"/>
B	can only function in climates that have large rainfalls	<input type="checkbox"/>
C	are built at suitable altitudes so that fast water flow rates are obtained	<input type="checkbox"/>
D	need to be supplied with large amounts of electricity	<input type="checkbox"/>

(Total for Question 20 = 1 mark)

21 Manufacturing a 3D model to present an idea is **most** useful when:

A	lots of flipchart paper is available	<input type="checkbox"/>
B	the customer wants to see a virtual prototype	<input type="checkbox"/>
C	there are lots of spare parts available in the design office	<input type="checkbox"/>
D	ideas are too complex to present in any other way	<input type="checkbox"/>

(Total for Question 21 = 1 mark)



P 3 9 9 6 8 A 0 7 1 6

22 Pedometers are electronic devices that individuals can wear, which count the number of walking or running steps that are taken over a period of time.



The outer casing of a pedometer is made from:

A	polymer	<input type="checkbox"/>
B	rubber	<input type="checkbox"/>
C	metal	<input type="checkbox"/>
D	glass	<input type="checkbox"/>

(Total for Question 22 = 1 mark)

23



(a) Petrol is delivered to town centre filling stations by:

(1)

A	tankers	<input type="checkbox"/>
B	pipelines	<input type="checkbox"/>
C	barrels	<input type="checkbox"/>
D	drums	<input type="checkbox"/>



(b) The canopy over a filling station would be installed by engineers from which sector?

(1)

A	Energy distribution	<input type="checkbox"/>
B	Automotive	<input type="checkbox"/>
C	Oil industry	<input type="checkbox"/>
D	Civil	<input type="checkbox"/>

(c) Some filling stations sell bio-fuels.

Which **one** of the following is an **environmental** advantage of bio-fuels?

(1)

A	Higher crop prices	<input type="checkbox"/>
B	Lower CO ₂ emissions	<input type="checkbox"/>
C	Cheaper to buy	<input type="checkbox"/>
D	Greater land use	<input type="checkbox"/>

(d) Which **one** of the following is an example of a bio-fuel?

(1)

A	Kerosene	<input type="checkbox"/>
B	Ethanol	<input type="checkbox"/>
C	Petrol	<input type="checkbox"/>
D	Paraffin	<input type="checkbox"/>

(Total for Question 23 = 4 marks)



H 3 8 0 8 4 A 0 9 1 6



(a) A railway track system would be constructed by which engineering sector?

(1)

A	Automotive	<input type="checkbox"/>
B	Civil	<input type="checkbox"/>
C	Mechanical	<input type="checkbox"/>
D	Energy	<input type="checkbox"/>

(b) Railway tracks are normally manufactured from:

(1)

A	steel	<input type="checkbox"/>
B	plastic	<input type="checkbox"/>
C	wood	<input type="checkbox"/>
D	iron	<input type="checkbox"/>

(c) The railway network helps the economy because it:

(1)

A	costs money to build	<input type="checkbox"/>
B	moves people and goods efficiently	<input type="checkbox"/>
C	has expensive food and drink on-board	<input type="checkbox"/>
D	increases local unemployment	<input type="checkbox"/>



(d) Diesel trains used on the railways do **not** produce:

(1)

A	air pollution	<input type="checkbox"/>
B	carbon monoxide	<input type="checkbox"/>
C	greenhouse gases	<input type="checkbox"/>
D	sustainable energy	<input type="checkbox"/>

(Total for Question 24 = 4 marks)



P 3 9 9 6 8 A 0 1 1 1 6

25



(a) Which engineering sector designs satellite systems?

(1)

A	Railway	<input type="checkbox"/>
B	Communications	<input type="checkbox"/>
C	Nuclear	<input type="checkbox"/>
D	Oil	<input type="checkbox"/>

(b) Satellite dishes benefit society as they can transmit data used by:

(1)

A	PVC systems	<input type="checkbox"/>
B	GRP systems	<input type="checkbox"/>
C	SWL systems	<input type="checkbox"/>
D	GPS systems	<input type="checkbox"/>

(c) Satellite dishes are often manufactured from fibreglass.

Fibreglass is a(n):

(1)

A	composite	<input type="checkbox"/>
B	alloy	<input type="checkbox"/>
C	metal	<input type="checkbox"/>
D	ceramic	<input type="checkbox"/>

(Total for Question 25 = 3 marks)



26



(a) The inner core used in electrical cable is normally made from:

(1)

A	copper	<input type="checkbox"/>
B	steel	<input type="checkbox"/>
C	glass	<input type="checkbox"/>
D	concrete	<input type="checkbox"/>

(b) Polymers are normally used to coat electrical cables because they are:

(1)

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

(c) Electricity is normally distributed by the:

(1)

A	international matrix	<input type="checkbox"/>
B	local grid	<input type="checkbox"/>
C	local web	<input type="checkbox"/>
D	national grid	<input type="checkbox"/>

(Total for Question 26 = 3 marks)



27 (a) A specialist car body panel could be made from:

(1)

A	glass	<input type="checkbox"/>
B	cement	<input type="checkbox"/>
C	GRP	<input type="checkbox"/>
D	PVC	<input type="checkbox"/>

(b) Which manufacturing process is used to produce steel car body panels?

(1)

A	Casting	<input type="checkbox"/>
B	Extrusion	<input type="checkbox"/>
C	Presswork	<input type="checkbox"/>
D	Forging	<input type="checkbox"/>

(Total for Question 27 = 2 marks)

28 (a) Increases in the levels of carbon dioxide (CO₂) contribute to global:

(1)

A	warming	<input type="checkbox"/>
B	cooling	<input type="checkbox"/>
C	positioning	<input type="checkbox"/>
D	freezing	<input type="checkbox"/>

(b) Trading in CO₂ emissions is known as:

(1)

A	recycling	<input type="checkbox"/>
B	reducing	<input type="checkbox"/>
C	lean manufacture	<input type="checkbox"/>
D	carbon offsetting	<input type="checkbox"/>

(Total for Question 28 = 2 marks)



29 (a) Which **one** of the following is a composite material?

(1)

A	Carbon fibre	<input type="checkbox"/>
B	Stainless steel	<input type="checkbox"/>
C	Polystyrene	<input type="checkbox"/>
D	Aluminium	<input type="checkbox"/>

(b) Nylon is a:

(1)

A	thermoplastic	<input type="checkbox"/>
B	thermosetting plastic	<input type="checkbox"/>
C	natural fibre	<input type="checkbox"/>
D	metal	<input type="checkbox"/>

(c) Composite materials are used in engineering because they:

(1)

A	generate more heat	<input type="checkbox"/>
B	have better properties	<input type="checkbox"/>
C	have less structure	<input type="checkbox"/>
D	look more expensive	<input type="checkbox"/>

(Total for Question 29 = 3 marks)



30 (a) Safe working practices in a workshop **must** be communicated using:

(1)

A	short presentations	<input type="checkbox"/>
B	email messages	<input type="checkbox"/>
C	permanent posters	<input type="checkbox"/>
D	video conferences	<input type="checkbox"/>

(b) Which **one** of the following is normally used to display ideas during brainstorming sessions?

(1)

A	Note book	<input type="checkbox"/>
B	Flipchart	<input type="checkbox"/>
C	Memory stick	<input type="checkbox"/>
D	Database	<input type="checkbox"/>

(Total for Question 30 = 2 marks)

TOTAL FOR PAPER = 45 MARKS

