Write your name here

Surname	Other names

Pearson Edexcel Principal Learning

Centre Number | | | | | |

Candidate Number | | | | |

Engineering

Level 1

Unit 1: Introducing the Engineering World

Wednesday 14 May 2014 – 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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P 4 1 0 0 5 A 0 1 1 6

PEARSON

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 engineering industry sector designs and manufactures helicopters?

A	Railway	☒
B	Marine	☒
C	Aerospace	☒
D	Automotive	☒

(Total for Question 1 = 1 mark)

2 Which **one** of the following processes would be carried out by a welder?

A	Milling	☒
B	Joining	☒
C	Forging	☒
D	Boring	☒

(Total for Question 2 = 1 mark)

3 Engineers that manufacture complicated jigs and fixtures are classified as:

A	skilled	☒
B	unskilled	☒
C	chartered	☒
D	semi-skilled	☒

(Total for Question 3 = 1 mark)

4 An engineer who measures components and assemblies is called a(n):

A	director	☒
B	planner	☒
C	manager	☒
D	inspector	☒

(Total for Question 4 = 1 mark)

5 Which **one** of the following would not be a member of an engineering project team?

A	Operator	☒
B	Actuator	☒
C	Designer	☒
D	Supervisor	☒

(Total for Question 5 = 1 mark)

6 Some materials used in engineering are classified as renewable.

This means that they are also:

A	accountable	☒
B	sustainable	☒
C	nondegradable	☒
D	unavailable	☒

(Total for Question 6 = 1 mark)

7 To extend the life of an engineered product it should be:

A	discarded	☒
B	exhibited	☒
C	reused	☒
D	rejected	☒

(Total for Question 7 = 1 mark)

8 Reducing waste by improving production processes is an example of:

A	recycling	☒
B	reacting	☒
C	lean manufacture	☒
D	carbon offsetting	☒

(Total for Question 8 = 1 mark)

9 Figure 1 shows engineering equipment.

Figure 1

An engineer using this equipment would be:

A	brazing	☒
B	measuring	☒
C	bluing	☒
D	modifying	☒

(Total for Question 9 = 1 mark)

10 Figure 2 shows a mass produced clockwork radio, designed by Trevor Baylis.

Figure 2

Clockwork radios are good for the environment because they:

A	use fossil fuels	☒
B	do not need recharging	☒
C	do not need batteries	☒
D	use mains power	☒

(Total for Question 10 = 1 mark)

11 Which form of energy is generated by flowing water?

A	Solar	☒
B	Nuclear	☒
C	Chemical	☒
D	Electrical	☒

(Total for Question 11 = 1 mark)

12 Which **one** of the following is a greenhouse gas?

A	Hydrogen	☒
B	Nitrous oxide	☒
C	Nitrogen	☒
D	Hydrogen oxide	☒

(Total for Question 12 = 1 mark)

13 In houses, cavity walls are insulated to:

A	generate heat	☒
B	generate light	☒
C	stop heat escaping	☒
D	stop light escaping	☒

(Total for Question 13 = 1 mark)

14 A water management engineer designs structures which:

A	filter fresh water	☒
B	treat sewerage	☒
C	transport drinking water	☒
D	prevent floods	☒

(Total for Question 14 = 1 mark)

15 A central heating thermostat would be designed by an engineer from which sector?

A	Control	☒
B	Communications	☒
C	Civil	☒
D	Chemical	☒

(Total for Question 15 = 1 mark)

16 Which activity would be carried out by a professional engineer?

A	Marking out	☒
B	Inspecting components	☒
C	Drilling holes	☒
D	Writing specifications	☒

(Total for Question 16 = 1 mark)

17 Experienced staff often have trainees working with them.

These trainees are called:

A	managers	☒
B	operatives	☒
C	professionals	☒
D	apprentices	☒

(Total for Question 17 = 1 mark)

18 Car satellite navigation systems (Sat-Nav) use:

A	ABS	☒
B	ESP	☒
C	GPS	☒
D	GTI	☒

(Total for Question 18 = 1 mark)

19 Hazard warnings in a workshop are usually displayed by:

A	video	☒
B	poster	☒
C	presentation	☒
D	email	☒

(Total for Question 19 = 1 mark)

20 Aeroplanes do **not** produce:

A	air pollution	☒
B	carbon dioxide	☒
C	greenhouse gases	☒
D	hydroelectric energy	☒

(Total for Question 20 = 1 mark)

21 Figure 3 shows a manufacturing plant that produces hydrochloric acids.

Figure 3

(a) What type of engineer would supervise a manufacturing plant that produces acids?

(1)

A	Civil	☒
B	Automotive	☒
C	Communications	☒
D	Chemical	☒

(b) Building a manufacturing plant is an example of:

(1)

A	bio engineering	☒
B	marine engineering	☒
C	civil engineering	☒
D	aerospace engineering	☒

(c) Which legislation **must** be considered when producing acids?

(1)

A	The End-of-Life Vehicles Regulations	☒
B	The Radioactive Substances Act	☒
C	The Animal By-Products Regulations	☒
D	The Control of Substances Hazardous to Health Regulations	☒

(Total for Question 21 = 3 marks)

22 Figure 4 shows some cutlery.

Figure 4

(a) Cutlery is made from:

(1)

A	stainless steel	☒
B	weathering steel	☒
C	tool steel	☒
D	mild steel	☒

(b) The main process used for making cutlery is:

(1)

A	turning	☒
B	moulding	☒
C	stamping	☒
D	casting	☒

(Total for Question 22 = 2 marks)

23 Figure 5 shows tower cranes.

Figure 5

(a) Which industry sector manufactures tower cranes?

(1)

A	Mechanical	☒
B	Marine	☒
C	Control	☒
D	Nuclear	☒

(b) Using a tower crane has economic benefits because it:

(1)

A	generates noise	☒
B	uses energy	☒
C	looks good	☒
D	saves time	☒

(Total for Question 23 = 2 marks)

24 Figure 6 shows a lawnmower.

Figure 6

(a) Which **one** of the following is **not** a benefit of the lawnmower shown above?

(1)

A	It collects the grass	☒
B	It is ergonomically designed	☒
C	It uses solar power	☒
D	It has safety features	☒

(b) What type of engineer would design the induction motor for a lawnmower?

(1)

A	Marine	☒
B	Electrical	☒
C	Automotive	☒
D	Civil	☒

(c) What category of worker would assemble a lawnmower?

(1)

A	Operative	☒
B	Professional	☒
C	Technical	☒
D	Craft	☒

(d) The plastic casing on a lawnmower is made from:

(1)

A	acrylic	☒
B	polypropylene	☒
C	nylon	☒
D	polyester	☒

(Total for Question 24 = 4 marks)

25 Figure 7 shows an infrared sensor activated tap.

Figure 7

(a) A sensor activated tap has benefits for society because it:

(1)

A	is maintenance free	☒
B	has a sleek design	☒
C	uses diminishing resources	☒
D	reduces cross contamination	☒

(b) Which industry sector manufactures infrared sensors?

(1)

A	Control	☒
B	Railway	☒
C	Electronic	☒
D	Communications	☒

(c) A benefit of using a sensor activated tap is that water can be:

(1)

A	recycled	☒
B	recovered	☒
C	saved	☒
D	generated	☒

(Total for Question 25 = 3 marks)

26 (a) Which **one** of the following would be **most** suitable to show how a piston moves?

(1)

A	Flipchart	☒
B	Microphone	☒
C	Video screen	☒
D	Reference book	☒

(b) When you deliver a presentation to a group of people you should:

(1)

A	maintain eye contact	☒
B	read a script	☒
C	ignore questions	☒
D	stand perfectly still	☒

(Total for Question 26 = 2 marks)

27 (a) When replacing the tyres on a racing car, good teamwork is likely to result in:

(1)

A	fewer accidents	☒
B	more damage	☒
C	slower changes	☒
D	greater danger	☒

(b) Which **one** of the following car parts cannot be recycled?

(1)

A	Disc pads	☒
B	Batteries	☒
C	Tyres	☒
D	Body panels	☒

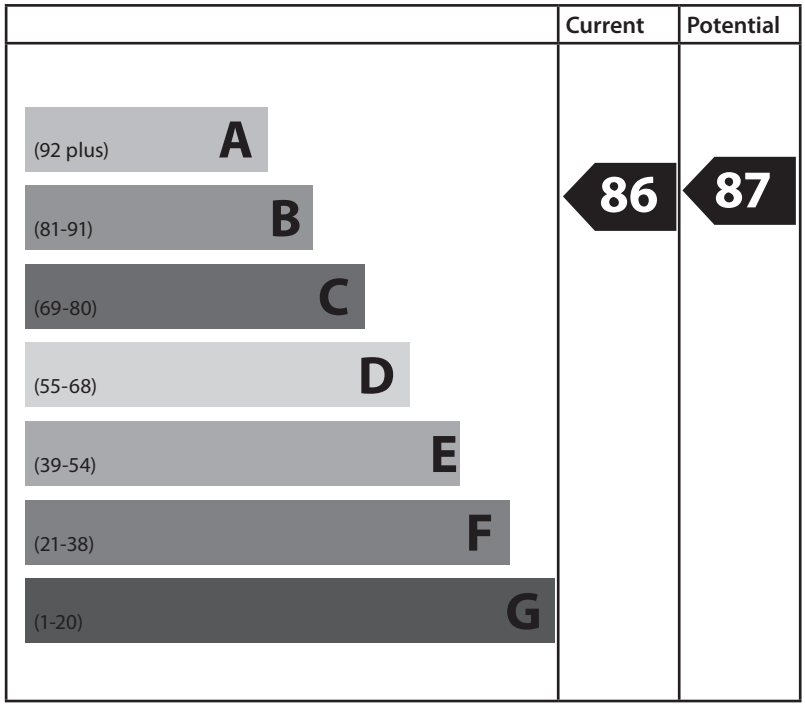
(c) Which engineering sector is **not** involved with manufacturing cars?

(1)

A	Civil	☒
B	Mechanical	☒
C	Electronic	☒
D	Automotive	☒

(Total for Question 27 = 3 marks)

28



(a) The label above is used when selling products such as refrigerators.

If the product has an A rating then it is the:

(1)

A	most expensive to buy	☒
B	most energy efficient to run	☒
C	least energy efficient to run	☒
D	least expensive to buy	☒

(b) A washing machine that can operate at 30°C is designed to reduce:

(1)

A	time	☒
B	space	☒
C	energy consumption	☒
D	maintenance requirements	☒

(Total for Question 28 = 2 marks)

29 Figure 8 shows a wheelie bin.

Figure 8

(a) When manufacturing a wheelie bin, good teamwork will result in:

(1)

A	shorter delivery times	☒
B	longer delivery lines	☒
C	incomplete assembly	☒
D	complete disassembly	☒

(b) Wheelie bins are used to separate household rubbish so some waste can be:

(1)

A	rebated	☒
B	recalled	☒
C	relocked	☒
D	recycled	☒

(Total for Question 29 = 2 marks)

30 (a) Electricity is supplied to most urban houses by:

(1)

A	battery	☒
B	pipeline	☒
C	satellite	☒
D	cable	☒

(b) The voltage of the electricity supply in homes is:

(1)

A	13v	☒
B	50v	☒
C	240v	☒
D	415v	☒

(Total for Question 30 = 2 marks)

TOTAL FOR PAPER = 45 MARKS