

Write your name here

Surname

Other names

**Pearson Edexcel
Principal Learning**

Centre Number

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Candidate Number

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Engineering

Level 3

**Unit 1: Investigating Engineering Business and
the Environment**

Thursday 22 May 2014 – Afternoon

Time: 1 hour 30 minutes

Paper Reference

EG301/01

You may use:

Pen, pencil, eraser, calculator

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 60.
- 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

SECTION A

Answer ALL questions.

In Section A, 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 Traffic lights would be commissioned by an engineer from which sector?

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

(Total for Question 1 = 1 mark)

2 How many years does an engineering company need to have been operating to be considered established?

A	1	<input type="checkbox"/>
B	2	<input type="checkbox"/>
C	5	<input type="checkbox"/>
D	10	<input type="checkbox"/>

(Total for Question 2 = 1 mark)

3 Figure 1 shows a symbol used on hazardous materials.



Figure 1

The symbol indicates that the material is:

A	carcinogenic	<input type="checkbox"/>
B	an irritant	<input type="checkbox"/>
C	harmful to the environment	<input type="checkbox"/>
D	highly flammable	<input type="checkbox"/>

(Total for Question 3 = 1 mark)



4 Which **one** of the following materials is **not** produced from finite resources?

A	HDPE	<input type="checkbox"/>
B	Plywood	<input type="checkbox"/>
C	Nitinol	<input type="checkbox"/>
D	Aluminium	<input type="checkbox"/>

(Total for Question 4 = 1 mark)

5 Which engineering sector is an example of a tertiary industry?

A	Automotive	<input type="checkbox"/>
B	Agriculture	<input type="checkbox"/>
C	Construction	<input type="checkbox"/>
D	Marine	<input type="checkbox"/>

(Total for Question 5 = 1 mark)

6 The consideration of factors including income, gender and age is known as:

A	demographics	<input type="checkbox"/>
B	social trends	<input type="checkbox"/>
C	social capital	<input type="checkbox"/>
D	ergonomics	<input type="checkbox"/>

(Total for Question 6 = 1 mark)



7 Figure 2 shows a hierarchical company structure.

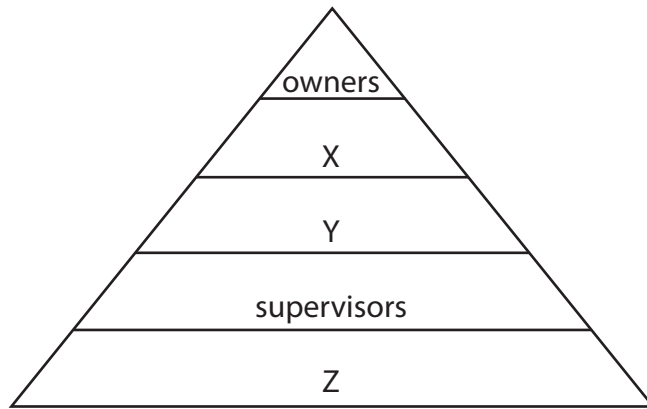


Figure 2

Which levels in the structure are represented by X, Y and Z?

A	X-managers Y-directors Z-operatives	<input type="checkbox"/>
B	X-partners Y-technicians Z-operatives	<input type="checkbox"/>
C	X-directors Y-managers Z-operatives	<input type="checkbox"/>
D	X-shareholders Y-designers Z-apprentices	<input type="checkbox"/>

(Total for Question 7 = 1 mark)

8 Which **one** of the following is **not** within the scope of the Confined Spaces Regulations (1997)?

A	Sewer	<input type="checkbox"/>
B	Trench	<input type="checkbox"/>
C	Silo	<input type="checkbox"/>
D	Mine	<input type="checkbox"/>

(Total for Question 8 = 1 mark)



9 Petrol is produced using continuous manufacturing methods.

Which **one** of the following costing techniques would be the **most** appropriate to use when producing petrol?

A	Process costing	<input type="checkbox"/>
B	Job costing	<input type="checkbox"/>
C	Absorption costing	<input type="checkbox"/>
D	Incremental costing	<input type="checkbox"/>

(Total for Question 9 = 1 mark)

10 Which **one** of the following is **not** within the duties of the Health and Safety Executive?

A	Inspecting scenes of accidents	<input type="checkbox"/>
B	Producing risk assessments	<input type="checkbox"/>
C	Issuing prosecutions	<input type="checkbox"/>
D	Producing guidance notes	<input type="checkbox"/>

(Total for Question 10 = 1 mark)

11 Figure 3 shows an example of a network diagram.

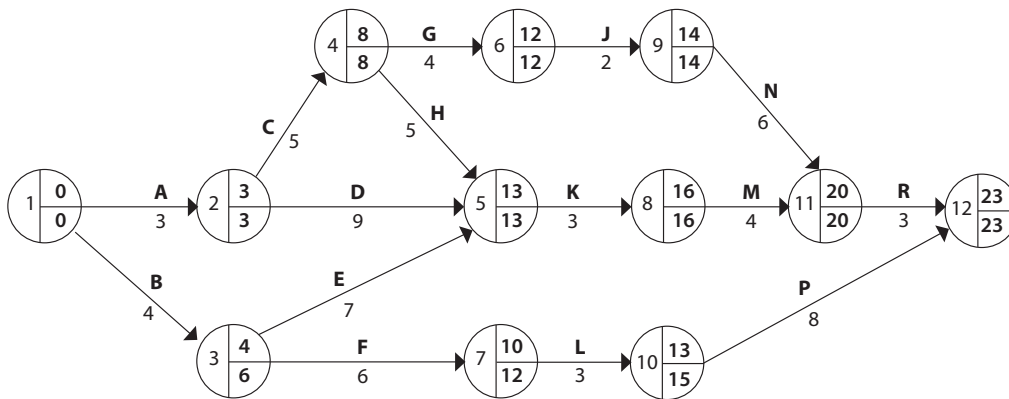


Figure 3

Which **one** of the following activities has the greatest amount of float?

A	Activity L	<input type="checkbox"/>
B	Activity M	<input type="checkbox"/>
C	Activity N	<input type="checkbox"/>
D	Activity R	<input type="checkbox"/>

(Total for Question 11 = 1 mark)



12 Which function within an engineering company would be involved with devising improvements to manufacturing processes?

A	Production planning and control	<input type="checkbox"/>
B	Technical support	<input type="checkbox"/>
C	Material supply and control	<input type="checkbox"/>
D	Research and development	<input type="checkbox"/>

(Total for Question 12 = 1 mark)

13 Figure 4 shows the zones which are used to identify the loads which can be lifted safely before a lifting assessment needs to be completed.

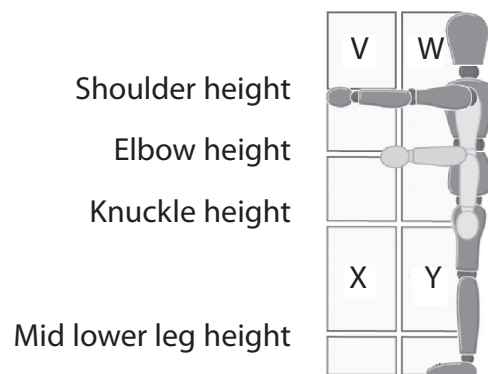


Figure 4

Which zone on the diagram would have the **lowest** load before assessment is required?

A	V	<input type="checkbox"/>
B	W	<input type="checkbox"/>
C	X	<input type="checkbox"/>
D	Y	<input type="checkbox"/>

(Total for Question 13 = 1 mark)

14 The ability of a company to generate concepts for new products is called:

A	marketing capability	<input type="checkbox"/>
B	planning capability	<input type="checkbox"/>
C	design capability	<input type="checkbox"/>
D	production capability	<input type="checkbox"/>

(Total for Question 14 = 1 mark)



15 An engineering company imports steel from Germany.

It pays €2.50 for every 10kg of steel.

It buys 3000kg of steel every month.

How much would the engineering company pay each month if the exchange rate is £1 = €1.20?

A	£625	<input type="checkbox"/>
B	£900	<input type="checkbox"/>
C	£6 250	<input type="checkbox"/>
D	£9 000	<input type="checkbox"/>

(Total for Question 15 = 1 mark)

16 One example of an indirect cost is:

A	oils and lubricants	<input type="checkbox"/>
B	production labour	<input type="checkbox"/>
C	hire of specialist equipment	<input type="checkbox"/>
D	primary packaging materials	<input type="checkbox"/>

(Total for Question 16 = 1 mark)

17 The legislation which sets out the entitlement of employees to take parental leave is:

A	The Working Times Regulations (1998)	<input type="checkbox"/>
B	The Employment Rights Act (1996)	<input type="checkbox"/>
C	The Childcare Act (2006)	<input type="checkbox"/>
D	The Employment Act (2002)	<input type="checkbox"/>

(Total for Question 17 = 1 mark)



18 A public company is one which:

A	is owned by the Government	<input type="checkbox"/>
B	has shares sold on the stock market	<input type="checkbox"/>
C	has shares sold to selected individuals	<input type="checkbox"/>
D	is owned by all of its workers	<input type="checkbox"/>

(Total for Question 18 = 1 mark)

19 Marginal costing is a method which:

A	calculates the cost of making one more of each item	<input type="checkbox"/>
B	considers only the material costs of making products	<input type="checkbox"/>
C	makes reference to the initial cost of capital investments	<input type="checkbox"/>
D	identifies the replacement cost for time-expired equipment	<input type="checkbox"/>

(Total for Question 19 = 1 mark)

20 The accounting principle which states that the value of an investment is the amount which it adds to the value of the business is known as:

A	addition	<input type="checkbox"/>
B	earnings	<input type="checkbox"/>
C	contribution	<input type="checkbox"/>
D	inflation	<input type="checkbox"/>

(Total for Question 20 = 1 mark)

TOTAL FOR SECTION A = 20 MARKS



SECTION B

21 Suggest **three** training opportunities which should be available to engineering apprentices in order for them to become technicians.

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(Total for Question 21 = 3 marks)

22 Outline the benefits of using software packages to produce work schedules for an engineering activity.

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(Total for Question 22 = 4 marks)



23 (a) In addition to producing risk assessments, state **two** ways in which an engineering company can provide a safe working environment for its employees.

(2)

1

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(b) Describe the process of carrying out a risk assessment for an engineering activity.

(5)

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(Total for Question 23 = 7 marks)



24 State **three** factors that a company will need to consider when carrying out a **make or buy** decision.

- 1
- 2
- 3

(Total for Question 24 = 3 marks)

25 State **three** activities which would be performed by the quality assurance function of an engineering company.

- 1
- 2
- 3

(Total for Question 25 = 3 marks)

TOTAL FOR SECTION B = 20 MARKS



SECTION C

26 (a) Outline what is meant by the term standing plan, and how their use can be of benefit to an engineering company.

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(b) Discuss the advantages and disadvantages for an engineering company of outsourcing non-core activities to other companies.

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(Total for Question 26 = 10 marks)



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