1145-532 FEBRUARY 2018
Level 3 Advanced Technical Diploma in Engineering (540)/
Level 3 Advanced Technical Extended Diploma in Engineering (720)
Level 3 Engineering – Theory Exam (2)

Wednesday 28 February 2018
09:30 – 11:30

If provided, stick your candidate barcode label here.

Candidate name (first, last)
First
Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Gender (M/F)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

• If any additional answer sheets are used, enter the additional number of pages in this box.
• Please ensure that you staple additional answer sheets to the back of this answer booklet, clearly labelling them with your full name, enrolment number, centre number and qualification number in BLOCK CAPITALS.
• All candidates need to use a black/blue pen. Do not use a pencil or gel pen.
• If provided with source documents, these documents will not be returned to City & Guilds, and will be shredded. Do not write on the source documents.

*I declare that I had no prior knowledge of the questions in this assessment and that I will not divulge to any person any information about the questions.

General instructions
• Use black or blue ballpoint pen.
• The marks for questions are shown in brackets.
• There are six questions in this examination paper. Answer all questions.
• Answer the questions in the spaces provided. Answers written in margins will not be marked.
• Cross through any work you do not want to be marked.
• Write all your working out and answers in this booklet.
• If extra space is required then the blank pages at the back of the pack should be used, clearly identifying the question.
1 One of the issues a company has to deal with is health and safety in its UK premises. The main piece of legislation it will have to comply with is the Health and Safety at Work Act 1974.

a) Explain the main legal responsibilities of employees when working for a UK based company. (8 marks)
b) Explain how the requirement to reduce risks ‘as far as is reasonably practicable’ affects health and safety in the workplace.  

(Total marks 12)
2 Materials used by a company may have to be cut before use.
   a) Name a thermal cutting process. (1 mark)

   b) Describe how the process named in a) is carried out. (3 marks)

   (Total marks 4)
3. a) State **four** enablers that can drive the process of innovation. (4 marks)

b) Explain how innovation in domestic appliances can have a substantial impact on society. (8 marks)

(Total marks 12)
4. When developing an innovative product, research and development activities can have a number of different objectives. Describe **four** different objectives that could be met by research and development and explain their importance. (8 marks)

(Total marks 8)
5  

a) Describe the process of pyrolysis. 

b) Explain how the increased use of pyrolysis might affect the environment. 

(Total marks 12)
There are many forms of low carbon technology, such as power generation using renewable energy sources and waste-to-energy systems. Discuss the influence of different stakeholders on the implementation of low carbon technologies.