



0171-518 MARCH 2019

Level 3 Advanced Technical Extended Diploma in Land-Based Engineering (1080)

Level 3 Land-Based Engineering – Theory exam (2)

If provided, stick your candidate barcode label here.

**Friday 8 March 2019
13:30 – 15:30**

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 additional answer sheets are used, enter the additional number of pages in this box. 
- Before taking the examination, **all candidates** must check that their barcode label is in the appropriate box. Incorrectly placed barcodes may cause delays in the marking process.
- Please ensure that you staple additional answer sheets to the **back** of this answer booklet, clearly labelling these 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, unless otherwise instructed.
- 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 examination and that I will not divulge to any person any information about the questions.**

You should have the following for this examination

- a pen with blue or black ink
- a non-programmable calculator

General instructions

- Use black or blue ball-point pen.
- The marks for questions are shown in brackets.
- This examination contains 12 questions. Answer **all** questions.
- Answer the questions in the spaces provided. Answers written in margins or on blank pages will **not** be marked.
- Cross through any work you do not want to be marked.



1 a) What type of gear is shown in Figure 1? (1 mark)

b) What type of load does the gear shown in Figure 1 exhibit? (1 mark)

c) State **three** disadvantages of the gear shown in Figure 1. (3 marks)



<http://www.globalspec.com>

Figure 1

2 a) What type of chain is shown in Figure 2? (1 mark)

b) Describe **three** benefits of the chain shown in Figure 2. (3 marks)



<https://dir.indiamart.com>

Figure 2

3 a) What belt would be used in conjunction with the pulley in Figure 3? (1 mark)

b) Identify **one** maintenance check that should be carried out on this type of belt in a transmission system. (1 mark)



<http://www.lockingdevice.net>

Figure 3

4 Describe **four** symptoms of incorrectly adjusted bearing pre-load on a transmission system. (4 marks)

5 State the **four** components that make up an epicyclic unit found in a tractor final drive system. (4 marks)

6 a) If a single plate dry clutch is experiencing slipping when driving, what are **five most** likely causes?

(5 marks)

b) A single plate dry clutch exhibits a rumbling sound when engaged. Describe **two most** likely causes.

(2 marks)

7 In a single plate clutch, describe **four** advantages of a spring disc hub compared to a rigid disc hub.

(4 marks)

10 A large gear is driving a small gear. The large gear rotates at 165 rpm and the small gear rotates at 330 rpm. What is the gear ratio between the two gears? (2 marks)

11 State **four main** components found in a tractor CVT transmission system. (4 marks)
