



4292-522 JUNE 2018

Level 2 Technical Certificate in Automotive

Level 2 Automotive – Theory Exam (1)

If provided, stick your candidate barcode label here.

**Thursday 14 June 2018
09:30 – 11:30**

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 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.**

You should have the following for this assessment

- a pen with blue or black ink

General instructions

- Use black or blue ball-point pen. Use pencil for drawing only.
- 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.
- Write all your working out and answers in this booklet.



1 State **two** consumables that would require safe storage and handling in the workplace. (2 marks)

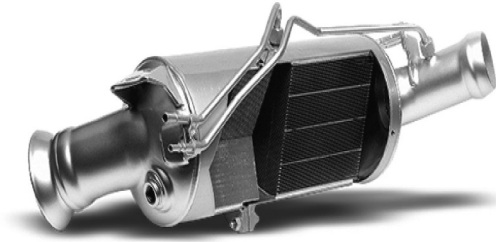
2 State **two** safety procedures to help prevent personal injury in the workplace. (2 marks)

3 Explain the benefits of operating as a franchised garage. (4 marks)

4 a) Explain how to assess the condition of an inertia reel seat belt. (2 marks)

b) State **two** different fluids that **must** be disposed of in line with government regulations following a service. (2 marks)

- 5 a) Identify the component in Figure 1. (1 mark)



Source: <http://www.qwiklube.co.uk>

Figure 1

- _____
- b) State where the component in Figure 1 is fitted on a vehicle. (1 mark)

- _____
- c) Name **two** checks that **must** be carried out after fitting the component shown to a vehicle. (2 marks)

- 6 a) Explain the principle of a hydraulic split braking system. (2 marks)

- b) State the **main** purpose of a brake master cylinder. (2 marks)

- 7 a) Compare the advantages and disadvantages between a single track rod and a divided track rod recirculating ball steering system. (4 marks)

- b) State why a caster angle is required on a vehicle steering system. (2 marks)

- 8 a) State **three** reasons why a suspension system is required in a vehicle. (3 marks)

- b) Explain why different materials are used in the construction of suspension system components. (3 marks)

9 a) Give **two** reasons why engines are fitted in different positions.

(2 marks)

b) Summarise the reasons for using a hybrid engine.

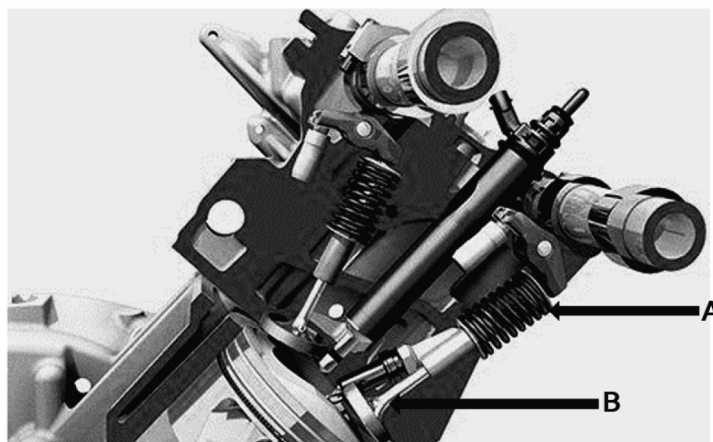
(3 marks)

c) i) Explain the terms 'inlet valve lead, inlet valve lag and valve overlap' in relation to engine valve timing.

(3 marks)

ii) Identify the **two** components arrowed A and B in Figure 2.

(2 marks)



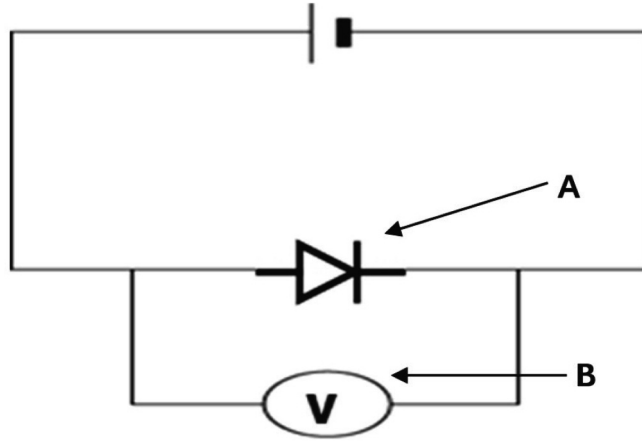
Source: <http://www.openpr.com/news/430172/>

Figure 2

d) Name **one** statutory requirement in the design of engines.

(1 mark)

10 a) i) Identify the type of electrical circuit layout in Figure 3. (1 mark)



Source: <http://www.bbc.co.uk/bitesize/quiz/q74171589>

Figure 3

ii) Identify the **two** electrical symbols arrowed A and B in Figure 3. (2 marks)

iii) State what is being measured at symbol V. (1 mark)

b) Explain what symptoms a high resistance will have on a starter motor and its circuit. (2 marks)

- 11 a) Explain how to use the equipment in Figure 4 to remove a transmission from a vehicle on a ramp. (3 marks)



Source: <https://www.amazon.com>

Figure 4

- b) State **two** reasons why a gearbox is used in a vehicle. (2 marks)

- c) State **two** symptoms of a clutch failing in a vehicle. (2 marks)
