



**4292-520 MARCH 2018**

**Level 2 Technical Award in Vehicle Technology**

Level 2 Vehicle Technology – Theory Exam (1)

If provided, stick your candidate barcode label here.

**Thursday 15 March 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 10 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 a) State **two** units of measurement used when checking tyre pressures. (2 marks)

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b) i) Explain the effect between brake pads and discs on a vehicle during braking. (2 marks)

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ii) Explain the effect on braking efficiency if the disc surface was contaminated with brake fluid. (2 marks)

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2 a) Explain the different properties of copper and aluminium. (3 marks)

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b) Explain why a water cooled internal combustion engine uses a pressurised cooling system. (2 marks)

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3 a) State the **two** electrical values that are required to calculate electrical power. (2 marks)

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b) Explain how high resistance would be identified when measuring a live circuit with a meter. (2 marks)

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4 a) Identify the **three** items arrowed in Figure 1. (3 marks)



Source: <http://denso-europe.com/denso-produces-100-millionth-sc-alternator/>

**Figure 1**

b) Explain the purpose of an alternator. (3 marks)

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5 a) State **two** reasons why a two stroke engine would be used for a motorcycle. (2 marks)

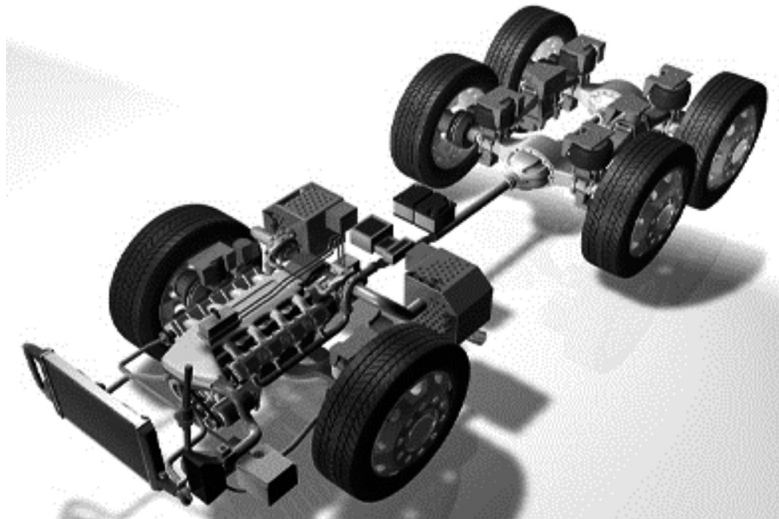
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b) Explain why the drive train layout in Figure 2 is used in heavy vehicles. (2 marks)



Source: <https://www.iav.com/us/engineering/commercial-vehicles-and-work-machines/chassis>

**Figure 2**

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6 a) State **two** reasons for using a final drive chain or belt on a motorcycle. (2 marks)

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b) Explain the reasons for using a front wheel drive in light vehicles. (4 marks)

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7 Compare the power, torque, emissions and life expectancy of a four stroke piston engine against a rotary spark ignition engine. (4 marks)

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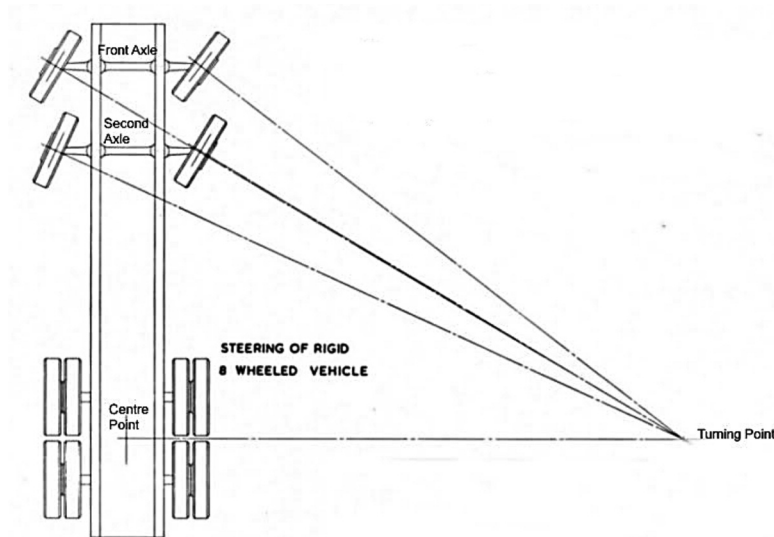
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8 a) Identify the steering system in Figure 3 and state why this steering system is used. (2 marks)



Source: <http://www.dana.com/commercial-vehicle/>

**Figure 3**

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b) Explain the purpose of a steering rack and pinion. (4 marks)

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- 9 a) Identify the tool in Figure 4 and give **one** example of its use when measuring a braking system component. (3 marks)



Source: <http://www.pagidprofessional.co.uk/tools>

**Figure 4**

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- b) Explain how to measure cylinder bore wear using a bore gauge tool. (4 marks)

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