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)

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

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

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

b) Explain why a water cooled internal combustion engine uses a pressurised cooling system. (2 marks)
3 a) State the two electrical values that are required to calculate electrical power. (2 marks)

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

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

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


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

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

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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.  

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

[Diagram of steering system]

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

Figure 3

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

b) Explain how to measure cylinder bore wear using a bore gauge tool. (4 marks)
The company you work for has been requested to move an extremely heavy load using a heavy goods vehicle.

Propose the most suitable suspension system, drive train and axle layout to be used on the trailer to move the heavy load. Within your proposal, compare the different types available and justify the system and materials you have chosen. (12 marks)