

higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

**T1140(E)(M25)T
APRIL EXAMINATION**

NATIONAL CERTIFICATE

MOTOR TRADE THEORY N2

(11040662)

**25 March 2014 (Y-Paper)
13:00–16:00**

Candidates will require drawing instruments.

This question paper consists of 5 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA
NATIONAL CERTIFICATE
MOTOR TRADE THEORY N2
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. Number the answers according to the numbering system used in this question paper.
 4. Write neatly and legibly.
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QUESTION 1

- 1.1 State THREE advantages of an electronic ignition system over a conventional ignition system. (3)
- 1.2 Explain the function of a coil in a conventional ignition system. (6)
- 1.3 Name the THREE tests that can be performed on a coil? (3)
- 1.4 1.4.1 What device advances the ignition timing under load conditions in a motor vehicle? (2)
- 1.4.2 Where is the device, mentioned in QUESTION 1.4.1, situated? (2 x 1) (2)
- 1.5 1.5.1 State THREE causes of fouling in a spark plug. (6)
- 1.5.2 Give a reason for each cause mentioned in QUESTION 1.5.1. (2 x 3) (6)
- [20]**

QUESTION 2

- 2.1 State TWO functions of a gearbox. (2)
- 2.2 Explain the following regarding a synchromesh unit:
- 2.2.1 The function (1)
- 2.2.2 The operation (5)
- 2.3 State TWO main causes for gears grating in a gearbox. (2)
- 2.4 Explain the disadvantage of the conventional differential. (3)
- 2.5 State THREE pre-checks should be performed on a differential before stripping it. (3)
- 2.6 Give the main function of the pinion gear in a differential. (2)
- [18]**

QUESTION 3

- 3.1 Explain, with the aid of THREE separate sketches, the following wheel alignment angles:
- 3.1.1 Toe-in
- 3.1.2 Negative camber
- 3.1.3 Castor angle

- 3.2 FIGURE 1 shows the steering geometry of a vehicle. Label the indicated parts by writing only the words(s) next to the letter A–D in your ANSWER BOOK.

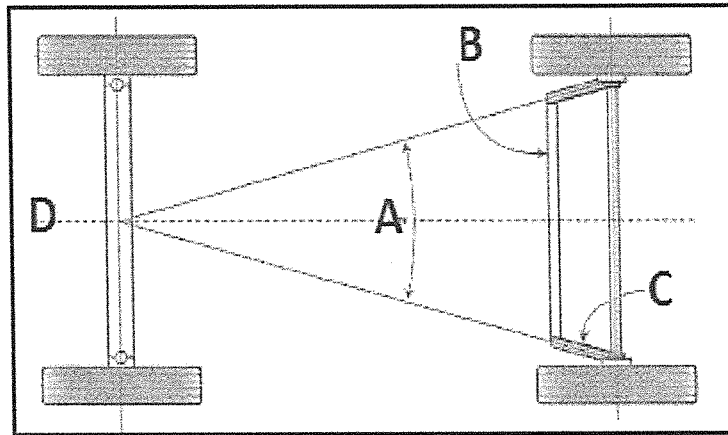


FIGURE 1

(4)

- 3.3 Give TWO reasons for the oversteering of a vehicle. (2)
- 3.4 Name the THREE adjustments that can be made to a steering box. (3)
- 3.5 Explain the function of the drag link arm that is used in suspension systems. (2)

[20]

QUESTION 4

- 4.1 FIGURE 2 shows constant velocity (CV) joints and a Hooke's joint.

State THREE advantages of constant velocity (CV) joints over Hooke's joint.

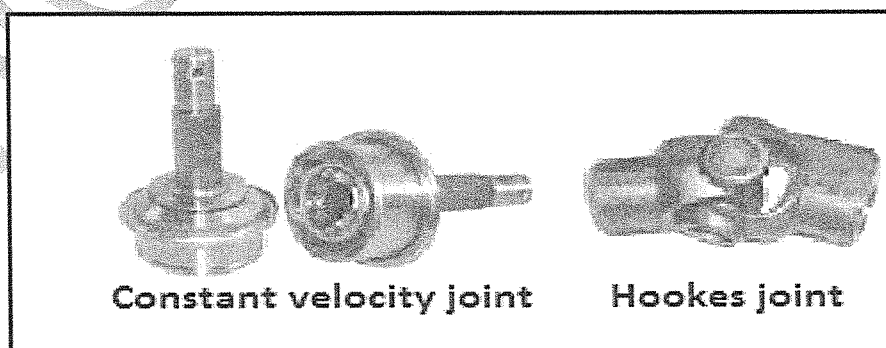


FIGURE 2

(3)

- 4.2 4.2.1 What is the function of the damper unit (shock absorber)? (1)
- 4.2.2 Name TWO types of damper units that are used in motor vehicles. (2)
- 4.3 State THREE differences between a torque tube drive and a Hotchkiss drive propeller shaft. (6)

- 4.4 Draw a neat, labelled sketch of a semi-floating rear-axle unit and include the following labels in the sketch: Axle case, half shaft, oil, oil seal, bearing and hub. (6)
- 4.5 Give the function of an interlocking device that is used in gearboxes. (2)
- [20]

QUESTION 5

- 5.1 FIGURE 3 shows a carburettor that is used in vehicles.

Explain the functions of a carburettor.

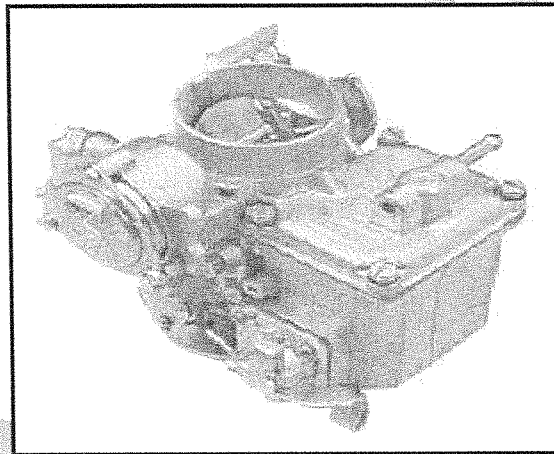


FIGURE 3

- 5.2 State THREE adverse effects of a float setting on a carburettor that is too low. (3)
- 5.3 5.3.1 State THREE advantages of disc brakes. (3)
- 5.3.2 State THREE disadvantages of disc brakes. (2 x 3) (6)
- 5.4 Give TWO reasons why brakes are dragging. (2)
- 5.5 Draw a neat, labelled sketch of a self-adjusting disc brake unit, showing the disc pads, disc and the piston. (4)
- 5.6 Discuss the hygroscopic property of brake fluid. (4)
- [22]

TOTAL: 100