

# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

**T1140(E)(J22)T  
AUGUST EXAMINATION**

**NATIONAL CERTIFICATE**

**MOTOR TRADE THEORY N2**

**(11040662)**

**22 July 2014 (Y-Paper)  
13:00–16:00**

**Candidates will require drawing instruments.**

**This question paper consists of 6 pages.**

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

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**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 FOUR advantages of constant velocity (CV) joints compared to Hooke's joints.

(4)

- 1.2 A vehicle has a problem selecting the second gear, you have to set the stripped gearbox components in sequential order to identify the faulty component.

List the sequential layout you would set the components in, to identify the faulty part.

(6)

- 1.3 A customer brings in his motor vehicle to your workshop complaining of gears grating.

Give FOUR possible reasons for the gears grating.

(4)

- 1.4 State ONE function of the interlocking device used in gearboxes.

(1)

- 1.5 FIGURE 1 shows a Countershaft Gear assembly also known as a Cluster shaft Gear assembly.

Label items (A-E) in your ANSWER BOOK.

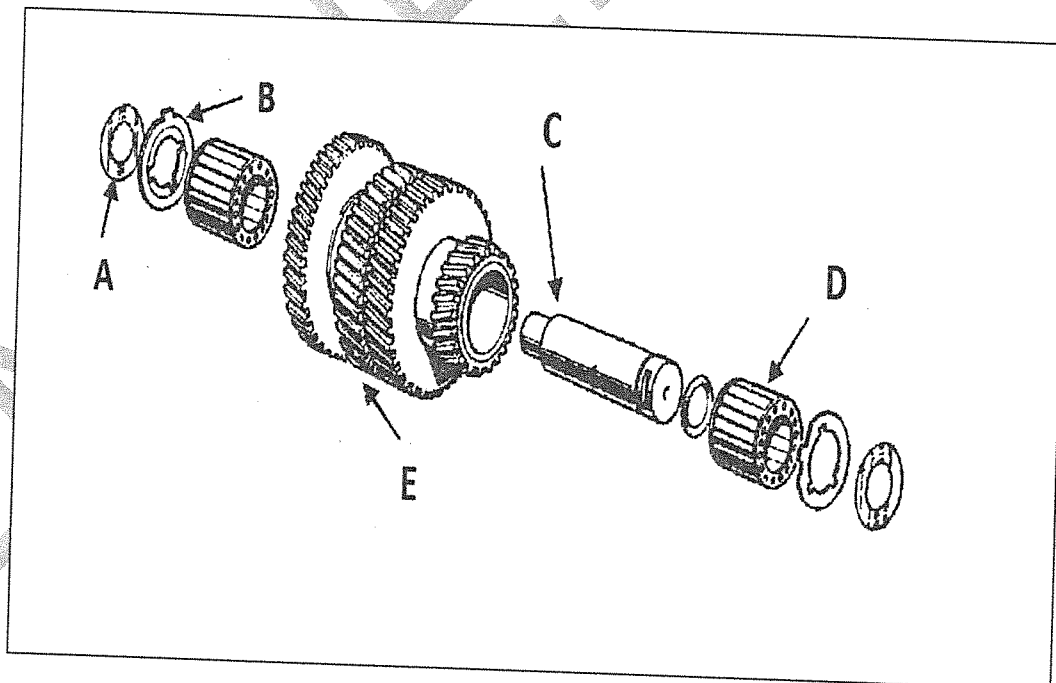


FIGURE 1

(5)  
[20]

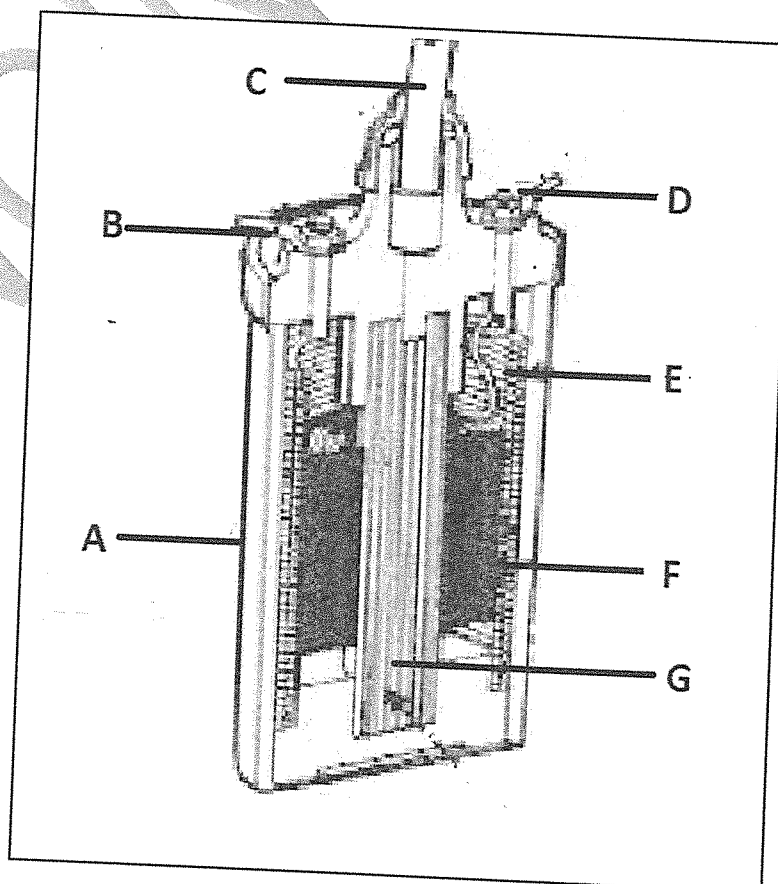
**QUESTION 2**

- 2.1 Explain, with the aid of a labelled sketch, the term *negative camber* showing the main suspension components. (4)
- 2.2 A customer hits a pothole and suspects damages to his motor vehicle.  
List THREE components that need to be checked for damage. (3)
- 2.3 Give TWO reasons for King pin inclination. (2)
- 2.4 Give THREE reasons for using leaf springs in heavy vehicles. (3)
- 2.5 Explain the term *kerb mass* of a motor vehicle. (2)
- 2.6 Explain *lock stop* as applicable to a steering system in a motor vehicle. (3)
- 2.7 A job card states that a motor vehicle is wandering on the road.  
State THREE checks that need to be carried out before setting wheel alignment. (3)
- [20]**

**QUESTION 3**

FIGURE 2 shows an Ignition Coil.

Refer to the figure below and answer the questions:



**FIGURE 2**

- 3.1 Explain the function of the coil. (3)
- 3.2 Label items (A–G) in your ANSWER BOOK. (7)
- 3.3 Spark plugs have codes stamped on it. (5)
- State the meaning of the code R N 9 BYC 4 for a Champion spark plug. (2)
- 3.4 Explain the term *cam dwell angle*. (3)
- 3.5 An engine will be damaged if it moves without an air cleaner. (2)
- Give THREE reasons for using air cleaners in a vehicle. (3)
- [20]

**QUESTION 4**

- 4.1 Give FOUR qualities of a good brake fluid. (4)
- 4.2 List FOUR functions of the unit that controls a braking system. (4)
- 4.3 Name TWO types of disc brake calipers. (2)
- 4.4 A customer complains that the paintwork on the right front fender of his vehicle is damaged after the brake pads were replaced in your workshop. Explain the possible cause for the damage. (4)
- 4.5 Explain the self-energisation action of drum brakes. (3)
- 4.6 State THREE reasons for a brake pedal being spongy. (3)
- [20]

**QUESTION 5**

FIGURE 3 shows a section view of a Downdraft Carburettor.

Refer to the figure and answer the questions:

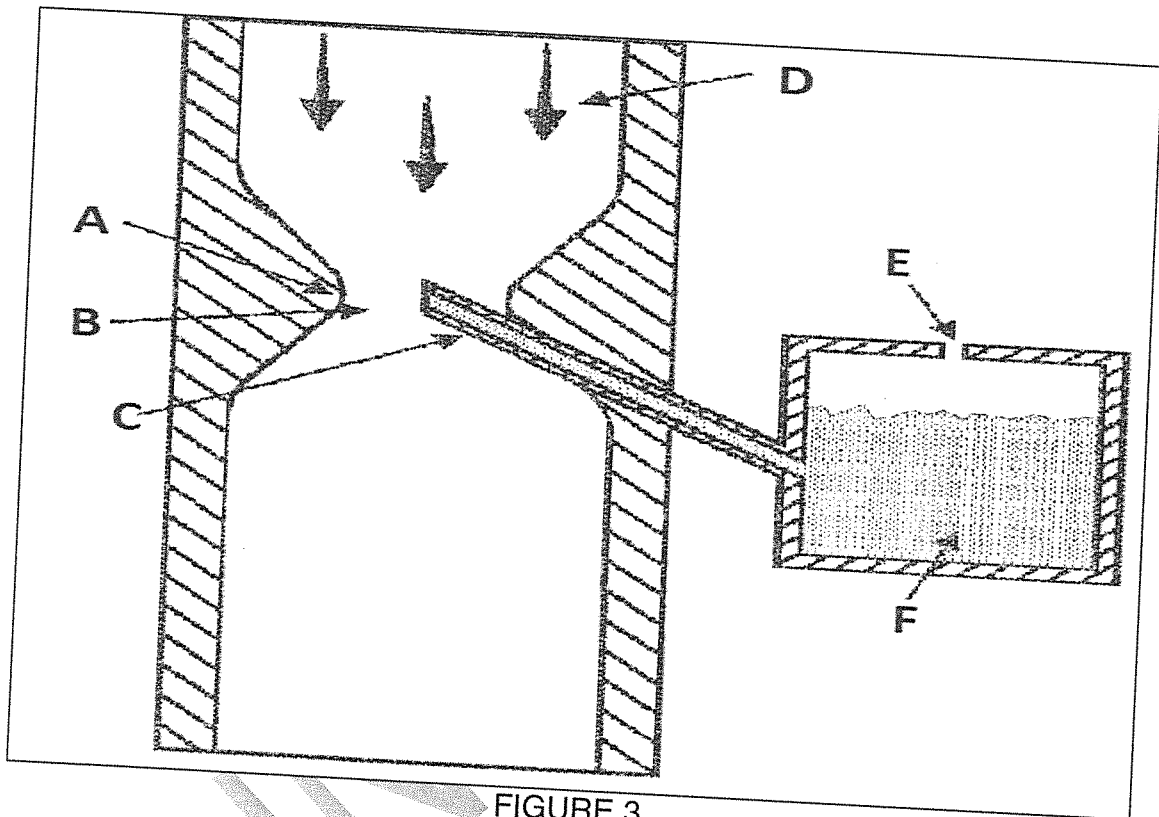


FIGURE 3

- 5.1 Give the function of a Carburettor. (3)
- 5.2 Label items (A–F) in your ANSWER BOOK. (6)
- 5.3 State THREE advantages of an electric fuel pump compared to a mechanical fuel pump. (3)
- 5.4 Give TWO possible reasons that will determine fuel pump pressure. (2)
- 5.5 Give THREE reasons for *running on* of a petrol engine. (3)
- 5.6 State THREE ways in which an automatic choke can be heated in a motor vehicle. (3)

[20]

**TOTAL: 100**