higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1230(**E**)(A6)T

NATIONAL CERTIFICATE

MOTOR TRADE THEORY N2

(11040662)

6 April 2018 (X-Paper)
09:00–12:00

This question paper consists of 9 pages.

TIME: 3 HOURS
MARKS: 100

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. Start each question on a NEW page.
5. Write neatly and legibly.

QUESTION 1

1.1 FIGURE 1 shows a diagram of a carburettor. Label the components marked A to D. Write only the answer next to the letter (A–D) in the ANSWER BOOK.

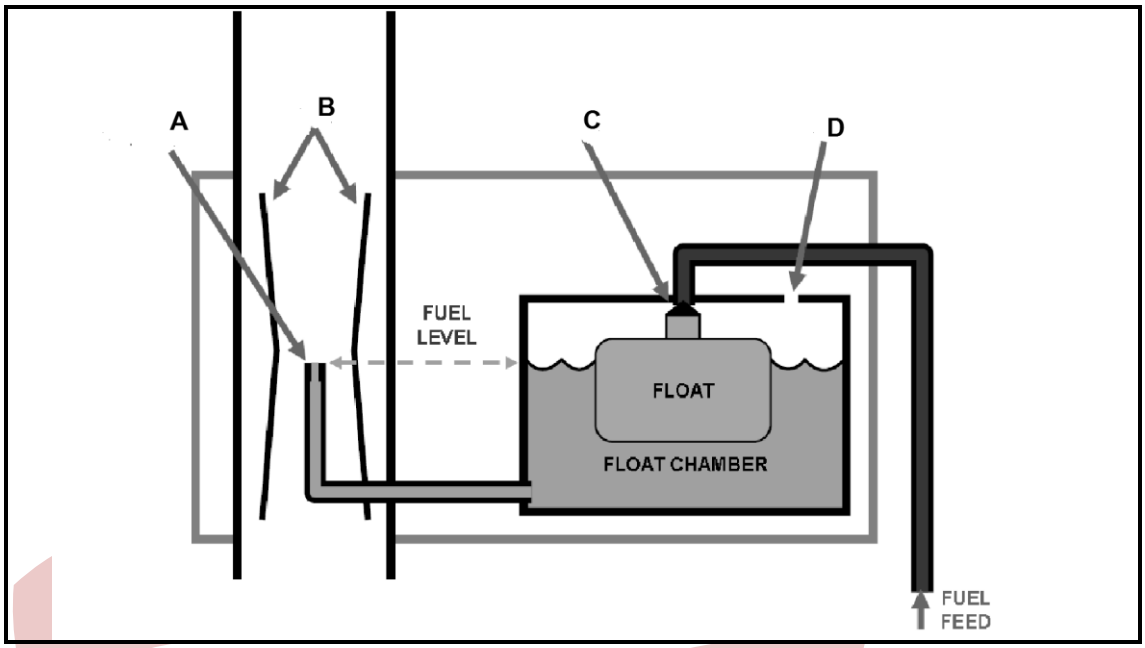

FIGURE 1 (4)

1.2 State FOUR functions of a carburettor. (4)

1.3 Name FIVE carburettor circuits found on a carburettor of a light passenger vehicle. (5)

1.4 State TWO causes of each of the following carburettor faults:

1.4.1 Dieseling

1.4.2 Lack of fuel in the float chamber

(2 × 2) (4)

1.5 FIGURE 2 shows a diagram of an ignition system. Label the components marked A to F. Write only the answer next to the letter (A–F) in the ANSWER BOOK.

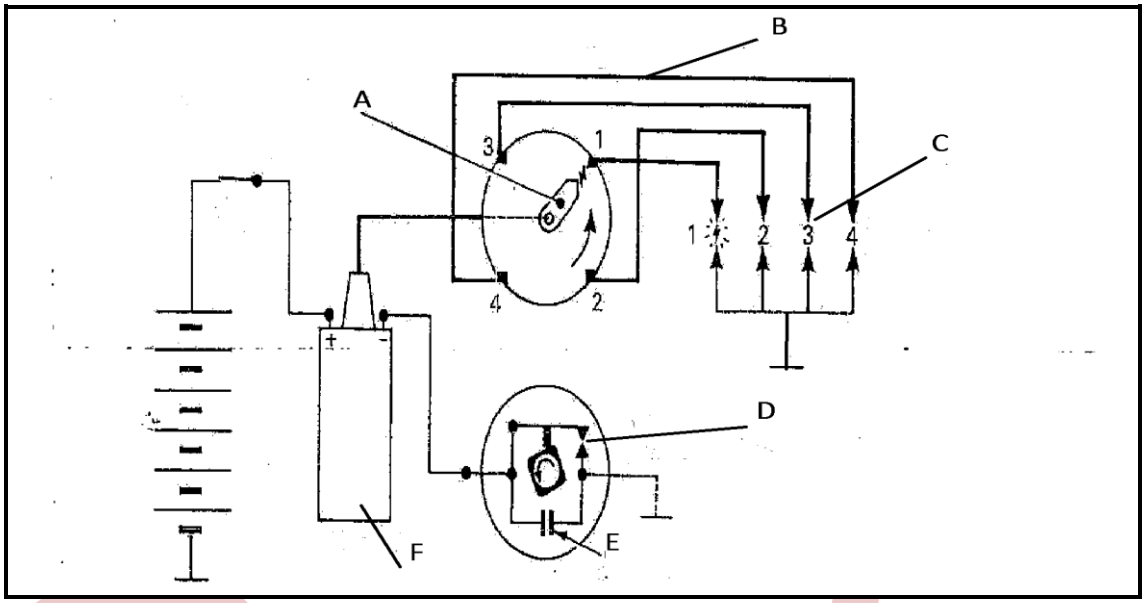

FIGURE 2 (6)

1.6 Give TWO functions of component E. (2)

1.7 Name TWO components used on the ignition systems to advance the ignition. (2)

1.8 State ONE function of each of the following ignition system components:

1.8.1 Ballast resistor

1.8.2 Ignition coil

(2 × 1) (2)

[29]

QUESTION 2

2.1 FIGURE 3 shows a diagram of a synchronising unit. Label the components marked A to D. Write only the answer next to the letter (A–D) in the ANSWER BOOK.

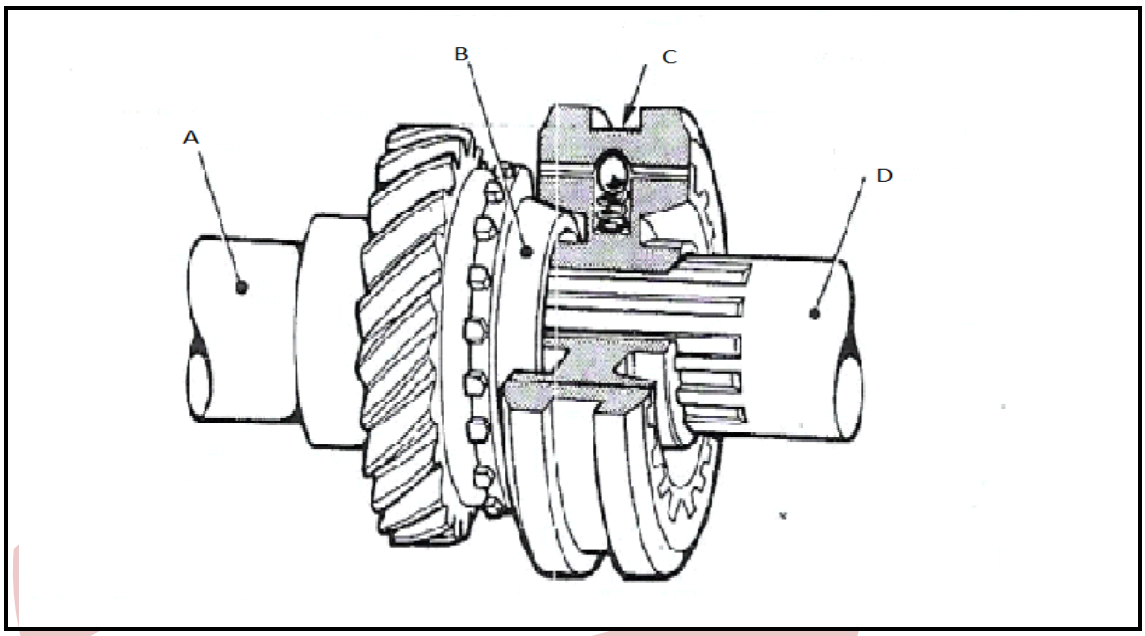

FIGURE 3 (4)

2.2 Give TWO functions of a synchronising unit. (2)

2.3 State TWO functions of each of the following components:

2.3.1 Final drive

2.3.2 Differential unit

(2 × 2) (4)

2.4 State THREE advantages of a Hotchkiss drive shaft. (3)

2.5 State THREE advantages of constant velocity joints as compared to the Hooke's-type universal joint. (3)

2.6 Name THREE axles used for rear-wheel drive vehicles. (3)

2.7 State THREE advantages of a semi-floating axle. (3)

[22]

QUESTION 3

3.1 FIGURE 4 shows a diagram of a suspension unit. Label the components marked A to E. Write only the answer next to the letter (A–E) in the ANSWER BOOK.

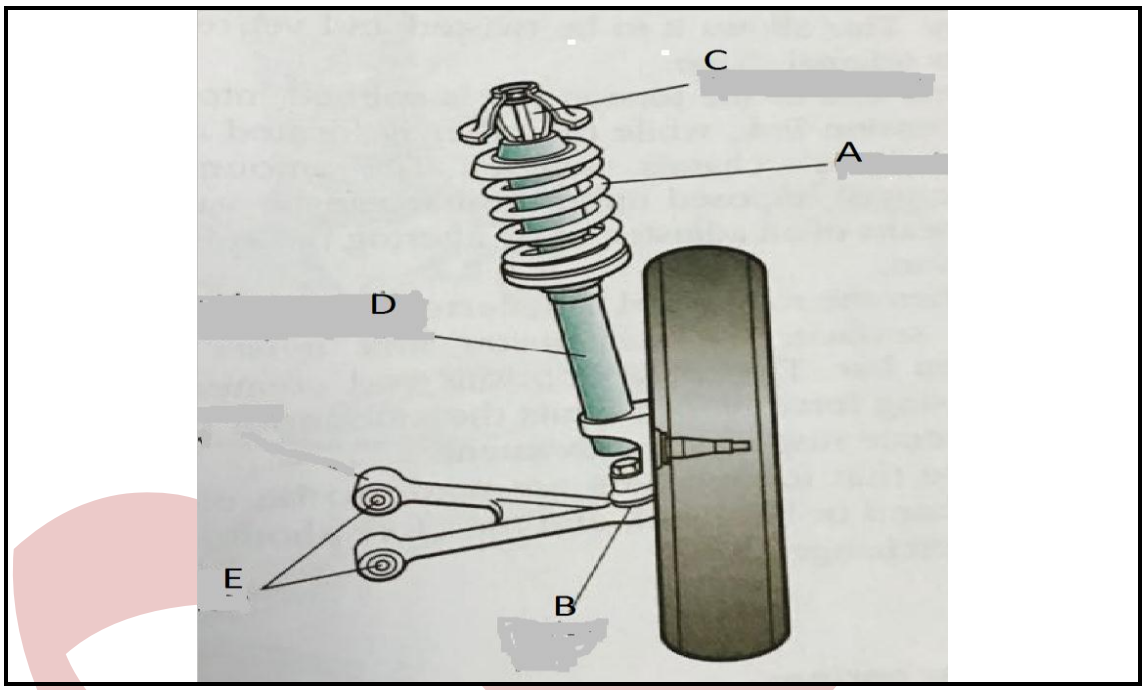

FIGURE 4 (5)

3.2 Name the suspension unit shown in FIGURE 4. (1)

3.3 Give TWO advantages of the suspension system shown in FIGURE 4. (2)

3.4 State THREE disadvantages of a torsion bar suspension system. (3)

3.5 List FOUR negative effects of worn shock absorbers. (4)

3.6 State THREE functions of a steering system. (3)

3.7 Describe the Ackerman's principle. (3)

3.8 Give FOUR causes of oversteer. (4)

[25]

QUESTION 4

4.1 FIGURE 5 shows a diagram of a brake system unit. Label the components marked A to E. Write only the answer next to the letter (A–E) in the ANSWER BOOK.

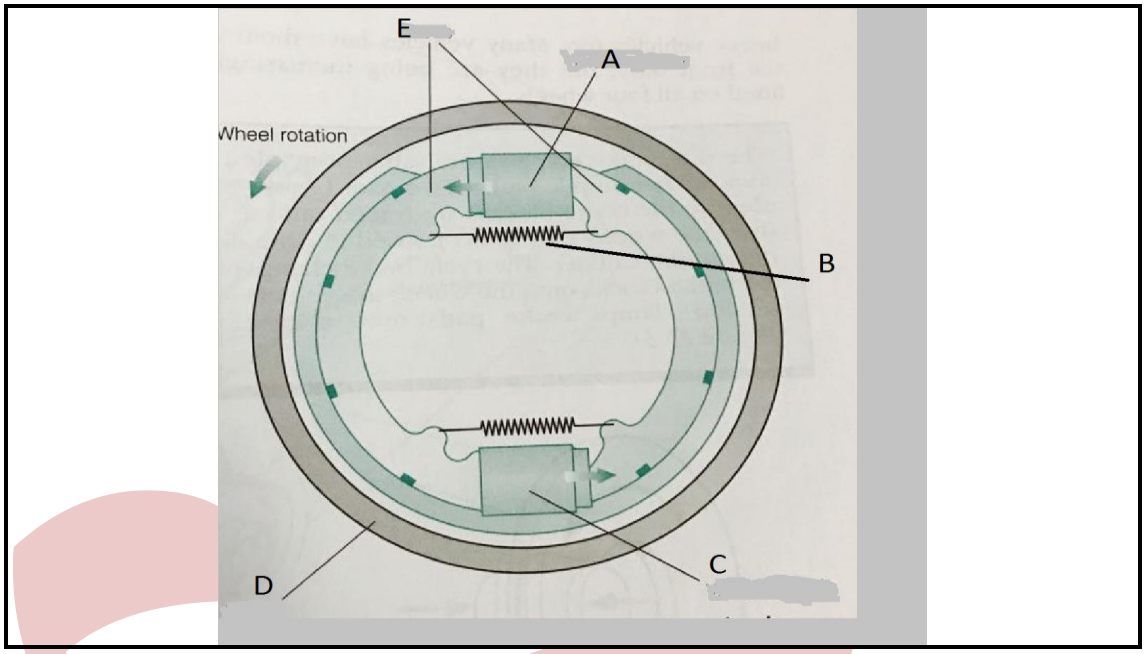

FIGURE 5 (5)

4.2 Identify the brake unit shown in FIGURE 5. (1)

4.3 Give FOUR advantages of the brake unit shown in FIGURE 5. (4)

4.4 State TWO causes of each of the following faults:

4.4.1 No brakes

4.4.2 Spongy pedal

(2 × 2) (4)
[14]

QUESTION 5

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (5.1–5.10) in the ANSWER BOOK.

5.1 In an S.I. engine, the throttle butterfly controls the supply of …

A the air only.
B the fuel only.
C the air/fuel mixture.
D None of the abovementioned

5.2 The three components of the primary ignition circuit are the …

A contact breaker points, condenser and distributor.
B contact breaker points, ignition coil and spark plugs.
C contact breaker points, ignition switch and condenser.
D contact breaker points, ignition switch and rotor.

5.3 The ignition quality of fuel is expressed by an index called the …

A octane number.
B cetane number.
C calorific value.
D carbon content.

5.4 In the Hotchkiss drive arrangement, the rear torque is absorbed by the …

A torque tube.
B radius road.
C rear springs.
D universal joint.

5.5 The included angle is a sum of …

A camber and castor.
B caster and kingpin inclination.
C camber and kingpin inclination.
D camber and toe in.

5.6 The king pin inclination is usually:

A Less than ½°
B Between 1° and 2°
C Between 2° and 5°
D Above 7°

5.7 When the slip angle is greater at the rear than at the front, the vehicle tends to …

A oversteer.
B understeer.
C toe out.
D toe in.

5.8 The type of axle in which the axle shaft can be removed without removing the wheel:

A Semi-floating.
B Three-quarter floating.
C Quarter floating.
D Full floating.

5.9 An axle that delivers no power to the wheels is called a … axle.

A steering
B dead
C suspension
D tandem

5.10 The primary purpose of a shock absorber is to …

A limit spring compression.
B regulate spring rebound.
C act as a helper spring.
D absorb shock.

(10 × 1) **[10]**

TOTAL: 100