

higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

**NATIONAL CERTIFICATE
NOVEMBER EXAMINATION
MOTOR TRADE THEORY N2**

12 NOVEMBER 2014

This marking guideline consists of 5 pages.

QUESTION 1

- 1.1 Float Circuit.✓
Idle circuit.✓
Off Idle circuit.✓
Acceleration circuit.✓
High speed circuit.✓
Full Power Circuit.
Choke System.

(ANY 5 × 1) (5)

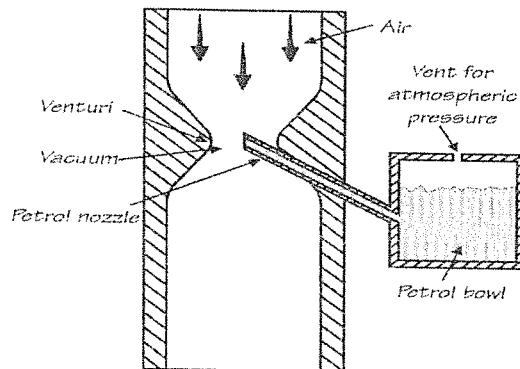
- 1.2 A defective fuel pump.✓
Blocked or clogged fuel hoses.✓
Broken fuel pipes/hoses✓
Blocked or clogged fuel filters.✓
Needle valve stuck in the closed position.✓

ANY OTHER RELEVANT ANSWERS (5)

- 1.3 Fuel pump volume.✓
Fuel pump pressure.✓
Fuel pump vacuum.✓

(3)

1.4



SIX MARKS TO LABEL, ONE MARK FOR ACCURACY OF DRAWING

(7)
[20]**QUESTION 2**

- 2.1 A=Spline shaft✓
B=Cage.✓
C=Steel Ball/Ball bearing/Bearing.✓
D=Grease.✓
E=Rubber Boot.✓
F=Shaft.✓

(6)

- 2.2
- Straight tooth bevel gear (Spur gears).✓
 - Worm & worm wheel helical gears.✓
 - Spiral bevel gear.✓
 - Hypoid gear.

(ANY 3 × 1) (3)
Please turn over

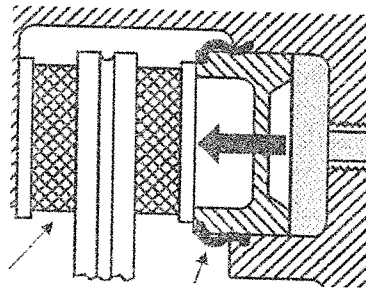
- 2.3
- Steering loss - becomes ineffective through loss of road contact✓
 - Worn tyres, irregular contact with road✓
 - Poor cornering✓
 - Poor braking✓
- ANY OTHER RELEVANT ANSWERS (4)
- 2.4 Pinion-bearing pre-load prevents the pinion from moving in and out under load✓ and maintains correct tooth contact✓ to prevent overheating, wear and noise.✓ (3)
- 2.5 Advantages
- It is adjustable compared to leaf and coil spring systems✓
 - It has four times as much spring per unit volume✓
 - Minimal friction✓
 - Takes less space✓
- (4)
[20]

QUESTION 3

- 3.1 A=Input shaft✓
B=Synchro.✓
C=Output shaft.✓
D=Layshaft.✓ (4)
- 3.2 3.2.1 Prevents two gears from being engaged simultaneously.✓✓ (2)
- 3.2.2 Serves as mounting point for fork and transmits movement of gear lever to fork.✓✓ (2)
- 3.2.3 Changes direction of rotation of reverse main gear and therefore output shaft.✓✓ (2)
- 3.3 Control arm.✓
Ball joint.✓
Spring✓
Lower control arm.✓
Steering knuckle.✓
- ANY OTHER RELEVANT ANSWERS (5)
- 3.4 The unsprung mass is the mass/weight that is not supported by the springs. (2)
- 3.5
- It provides a permanent gear reduction of approximately 4 : 1.
 - It transfers the drive through 90 degrees from propeller shaft to drive shafts.
 - Provides a differential.
- (3)
[20]

QUESTION 4

- 4.1 The vacuum servo unit in the disc brakes is to assist the driver to apply a small force✓ at the brake pedal but obtain a larger force✓ at the brakes on the wheel. It uses the engine vacuum✓ to apply the brake system and only functions when the vehicle engine is running. ✓ (4)
- 4.2
- Corrosion of disc due to water✓
 - No self-energising action✓
 - Difficult to arrange effective handbrake mechanism✓
 - Brake squeal is sometimes a problem✓
- (4)
- 4.3
- Over-adjusted parking brakes✓
 - Master cylinder faulty✓
 - Contaminated brake fluid
 - Vent clogged
- (ANY 2 × 1) (2)
- 4.4 As the brake pads wear✓, the piston moves out✓ against the pads✓ and the space is filled with brake fluid✓.



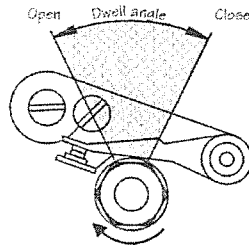
Two marks for accuracy of sketch (6)

- 4.5 Self-energisation is when the brake shoe is forced about the anchor point into the drum brake✓ and the force of friction against the rotating drum produces a wedge✓ or lever effect ✓ and in essence gives the second shoe a self-servo action.✓

(4)
[20]

QUESTION 5

- 5.1 The condenser reduces arcing or burning of the ignition points✓ and it also boosts the primary circuit✓. (2)
- 5.2 Vacuum advance unit✓ – Load conditions✓
Mechanical/centrifugal advance unit✓ – Speed conditions✓ (4)
- 5.3 Dwell angle refers to the period that the points are closed.✓✓



THREE MARKS FOR DRAWING (5)

- 5.4 To facilitate easy steering movement; ✓
To make driving conditions efficient for the driver, taking all road conditions into consideration; ✓
To reduce tyre wear due to scuffing. (ANY 2 × 1) (2)
- 5.5 Kerb mass – Full operating mass of the vehicle with oil, coolant and fuel filled to specifications. (2)
- 5.6
- Rack and pinion✓
 - Worm and sector✓
 - Worm and peg✓
 - Worm and CAM✓
 - Worm and NUT✓
 - Re-circulating ball

(ANY 5 × 1) (5)
[20]

TOTAL: 100