

higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

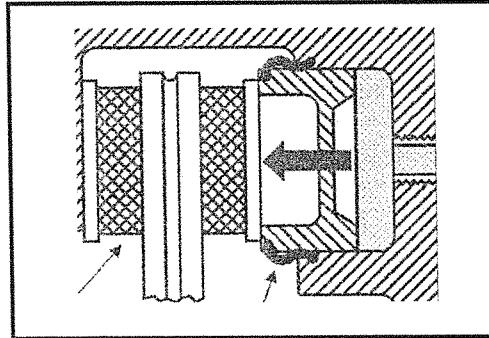
**NATIONAL CERTIFICATE
NOVEMBER EXAMINATION
MOTOR TRADE THEORY N2**

25 NOVEMBER 2013

This marking guideline consists of 5 pages.

QUESTION 1

- 1.1 As the brake pads wear, the piston moves out against the pads and the space is filled with brake fluid.

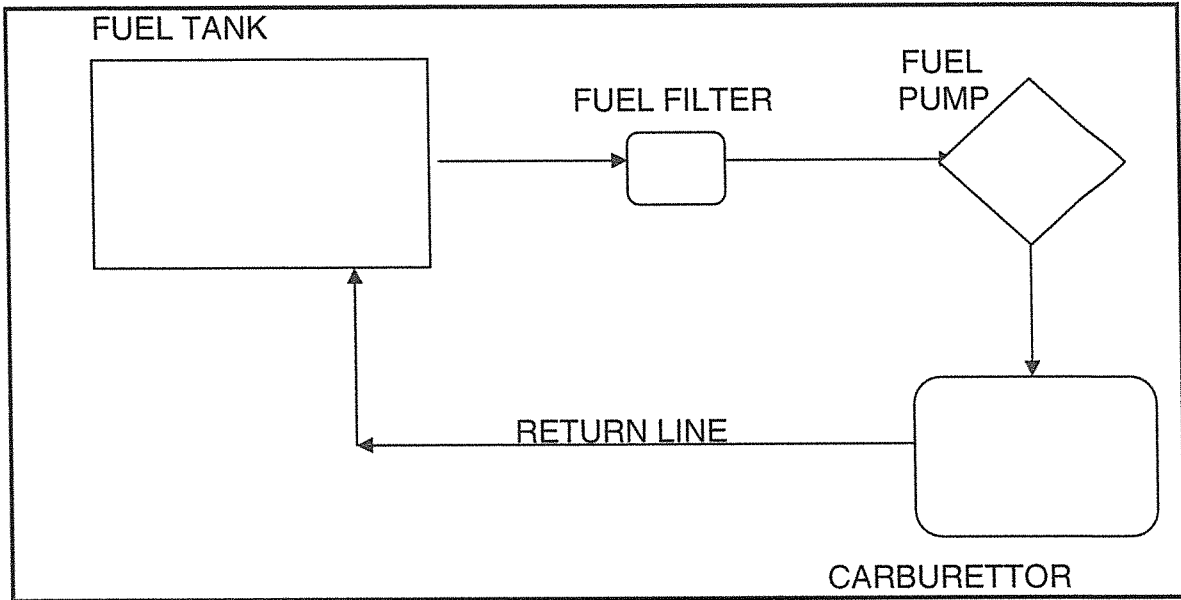


- (4)
- 1.2 Brake fade is the gradual deterioration of the efficiency of the braking system due to heat or minor leak. (3)
- 1.3 Self energisation is when the brake shoe is forced about the anchor point into the drum brake and the force of friction against the rotating drum produces a wedge or lever effect and in essence gives the shoe a self - servo action. (4)
- 1.4 Disadvantages:
- Corrosion of disc due to water
 - No self - energising action
 - Difficult to arrange effective handbrake mechanism
- Advantages
- Greater Heat dissipation
 - Cleaner disc surface- centrifugal forces throw out dirt.
 - Self-adjusting
- (6)
- 1.5 The check valve system is to maintain a standing pressure in the system and to prevent air or dirt into the brake system. It keeps pedal free play to a minimum. It keeps seals in light contact with bore surface to avoid leakage or air entry. It prevents fluid from re-entry when bleeding the brakes. (2)
- 1.6 The function of the compensator is to allow each wheel actuator to receive an equal pull force. (1)

[20]

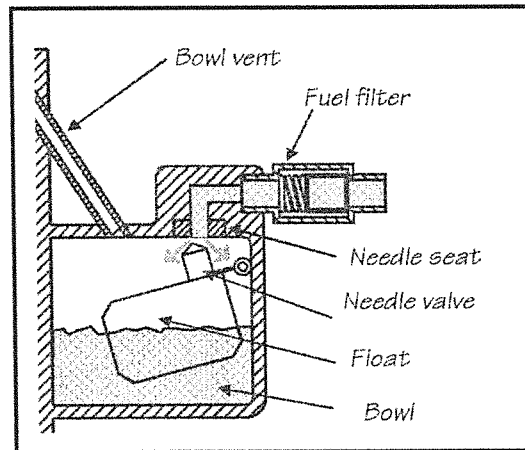
QUESTION 2

2.1



(8)

2.2



The float systems serve as a storage space for the fuel and allow fuel into its chamber via a needle and seat controlled by the float.

(6)

2.3

- Defective or inoperative fuel pump
- Blocked or clogged fuel hoses, filter or pick up tube in tank
- Needle valve stuck in closed position.

(3)

2.4

Enriches mixture for high speed or for load conditions.

(2)

2.5

- Float system faulty, needle stuck in open position
- Carburettor jet too large

(2)

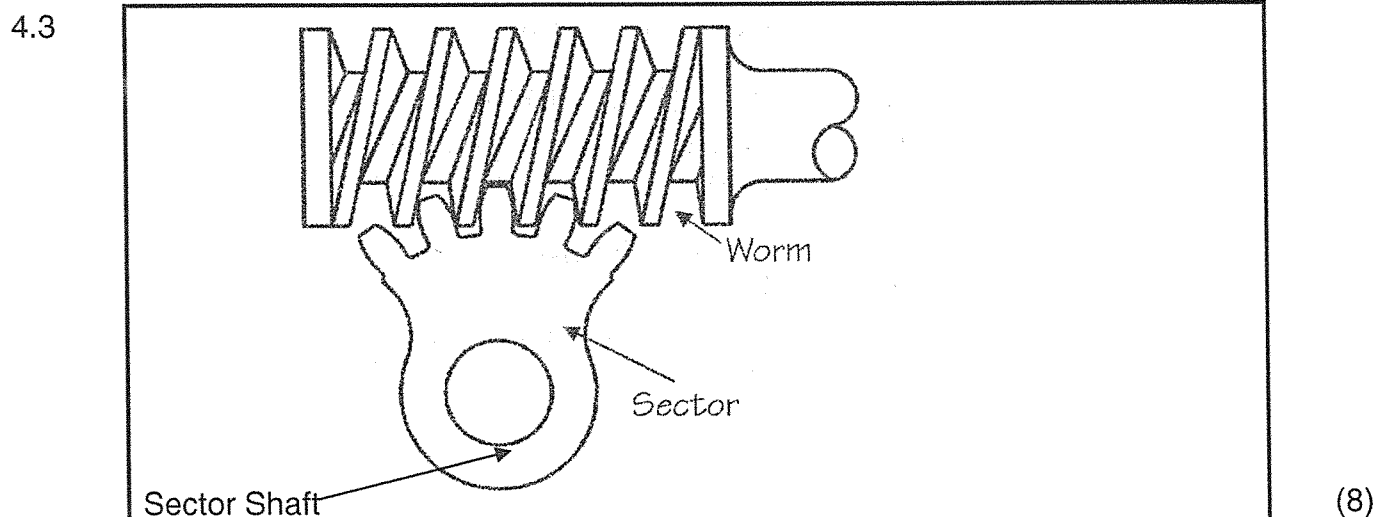
[21]

QUESTION 3

- 3.1 Ignition Coil Transform low battery voltage 12 v to high voltage
 Condenser Reduce arcing of points.
 Battery Supplies 12 volts
 Spark plug Provides spark into combustion chamber.
 Rotor Rotates high voltage from coil to spark plug (10)
- 3.2
- Base plate of distributor loose.
 - Distributor shaft and or bearings worn. (2)
- 3.3
- As the accelerator is depressed under load conditions
 - Steep hill or sudden acceleration a vacuum
 - Suction is created intake manifold which in turns via a vacuum pipe sucks the vacuum advance unit which is connected to the base plate of the distributor thereby advancing the ignition timing. (3)
- 3.4
- The fuel tank is located at the opposite end to the engine and the fuel needs to be uplifted from the tank to the engine.
 - A fuel pump either mechanical or electrical is used to pump the fuel from the tank to the engine. (2)
- 3.5
- Oil bath typed
 - Oil wetted type (2)
- [19]

QUESTION 4

- 4.1
- Helps provide steering stability
 - Reduces steering effort and tyre wear (2)
- 4.2
- Relatively cheap to manufacture and maintain
 - Simple connection to axle and body
 - Can be easily up-rated by addition of leaves (3)



- 4.4
- Steering linkages for damage or wear
 - Suspension and chassis for damage
 - Spring/suspension height
 - Steering box free play and mounting bolts
 - Wheel bearing free play
- (5)
- 4.5 Kerb mass is the full operating mass of the vehicle with all fluids topped to specification, but without any passengers in the vehicle.
- (2)
[20]

QUESTION 5

- 5.1 Disadvantages
- Mechanical efficiency is high
 - Relatively cheap to manufacture
 - Reduced side thrust
- (Any 2 × 1) (2)
- Disadvantages of Spur Gears
- Gears are noisy in operation
 - Gears have to be stationary when engaging them
- (2)
- 5.2
- INPUT SHAFT
 - CLUSTER SHAFT/GEAR
 - SECOND GEAR
 - SYNCHRO CONE
 - SYNCHRO HUB
 - OUTPUT/MAIN SHAFT
- (6)
- 5.3 The differential is the thing that works both drive axles at the same time, but lets them rotate at different speeds so that the car can make turns. When a car makes a turn, the outer wheel has to turn faster than the inner wheel, due to the difference in the length of the paths they take. The differential is located between the two wheels, and is attached to each wheel by a half-shaft rotated through a bevel gear. During turns, the side gears turn at rates dictated by the radius of the turns, and the spider gears then turn to allow the outer wheel to turn faster than inner wheels
- (8)
- 5.4 Power goes to the wheel of least resistance, hence if one wheels is in loose gravel or mud, the power will goes to that wheel causing it to spin and vehicle will be stuck
- (2)

[20]

TOTAL: 100