



**higher education  
& training**

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

# **MARKING GUIDELINE**

**NATIONAL CERTIFICATE**

**MOTOR TRADE THEORY N1**

**2 AUGUST 2019**

**This marking guideline consists of 5 pages.**

**QUESTION 1**

1.1	1.1.1	B		
	1.1.2	D		
	1.1.3	A		
	1.1.4	B		
	1.1.5	D		
	1.1.6	C		
	1.1.7	C		
	1.1.8	B		
	1.1.9	B		
	1.1.10	B		
			(10 × 1)	(10)
1.2	1.2.1	False		
	1.2.2	False		
	1.2.3	False		
	1.2.4	True		
	1.2.5	True		
	1.2.6	False		
	1.2.7	True		
	1.2.8	True		
	1.2.9	True		
	1.2.10	True		
			(10 × 1)	(10)
				<b>[20]</b>

**QUESTION 2**

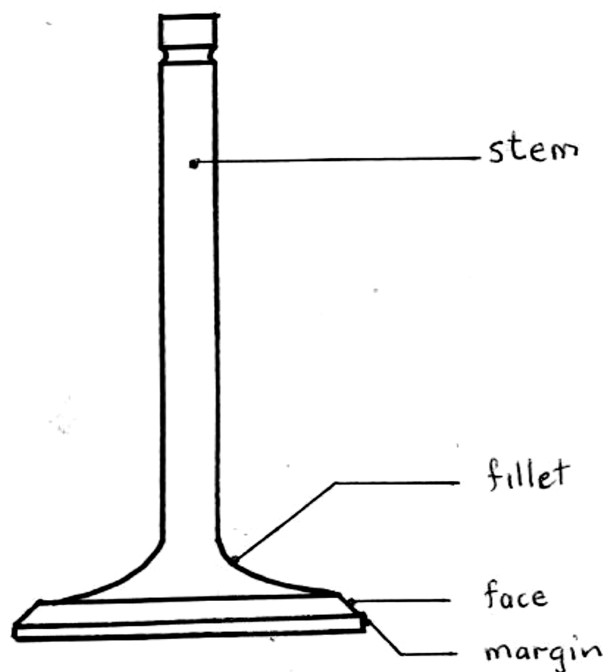
2.1	• Inspect the grinding wheel for physical damage.			
	• Wear safety goggles.			
	• Confirm that the wheel speed and the machine speed is the same.			
	• Ensure that the mounting flanges are equal in size.			
	• Check that the tool rest is no more than 2 mm away from the wheel.			
	• Make sure the safety guard is in place.			
	• Allow the wheel to spin for at least one minute.			
• Keep fingers away from the rotating wheel.				(8)
2.2	• Dial gauge			
	• Micrometer			
	• Vernier callipers			
	• Feeler gauge			
	• Steel rule			
• Straight edge			(Any 5 × 1)	(5)
2.3	• Three-leg puller			
	• Two-leg puller			
				(2)
				<b>[15]</b>

**QUESTION 3**

- 3.1
- Clutch pedal free play
  - Clutch cable adjustment or push-rod travel in case of hydraulic clutch
  - Condition of the cable for free movement or hydraulic leaks in the case of hydraulic clutch
  - Gear-selector linkages or cables
  - Road test to confirm the problem exists
- (5)

- 3.2
- Inspect the water jackets for excessive rust that can make the cylinder walls thin.
  - Inspect the cylinder wall for excessive wear to allow for reboring.
  - Visually check for obvious cracks as some cracks cannot be repaired.
  - Inspect the cam-follower bores for excessive wear as these bores are sometimes not repairable.
  - Ensure that all main bearing caps are there as these caps are not interchangeable between blocks.
- (5 × 2) (10)

3.3



(5)  
**[20]**

**QUESTION 4**

PETROL	DIESEL
• Fuel supply via carburettor	• Fuel supply via high-pressure diesel pump
• Spark plugs ignite the mixture	• Hot compressed air ignite the mixture
• Lighter engine parts	• Heavier engine parts
• Large combustion chamber	• Small combustion chamber
• Mixture is taken in on induction stroke	• Clean air is taken in on induction stroke

(5 + 5) (10)

- 4.2 This engine does not have valves but ports✓ at the lower end of the cylinder just above✓ the piston at BDC but. The crankcase is sealed✓ and forms part of the intake system. The crankcase is connected to the inlet port via a duct. The carburettor✓ is mounted to the crankcase before a reed valve✓ that controls gas flow into the crankcase.
- (5)  
[15]

**QUESTION 5**

- 5.1 Hydrostatic lubrication occurs when oil is pumped✓ through the journal bearings before the engine is started. The reason is to totally eliminate the possibility of metal✓ contact in the bearings on start-up.✓ (3)
- 5.2 Static friction exists between surfaces when no slip takes place, while dynamic friction exists between surfaces when slip occurs. (2)
- 5.3
- Extreme-pressure agents✓ prevent metal-to-metal contact between surfaces under high pressure.✓
  - Rust inhibitors✓ displace water from parts to prevent rust.✓
  - Antifoaming agents✓ prevent air bubbles in the oil.✓
  - Detergents and dispersants✓ clean out carbon deposits and dirt from parts.✓
  - Oxidation inhibitors✓ reduce the build-up of sludge.✓
  - Viscosity-index improvers✓ reduce the thinning of the oil when hot.✓
  - Pour-point depressants✓ allow the oil to flow when cold.✓ (Any 5 × 2) (10)
- [15]

**QUESTION 6**

- 6.1
- Disconnect the battery from the electrical system of the car.
  - Keep the charger switched off when connecting and disconnecting the cables.
  - Double check the correct polarity before switching the charger on.
  - Ensure the area is well ventilated.
  - Keep open flames away from the battery.
  - Periodically check the electrolyte temperature to not exceed 50 °C.
  - Always wear eye protection when doing inspections.
  - Open the cell caps during charging.
  - Monitor SG readings periodically to prevent over-charging. (Any 8 × 1) (8)
- 6.2
- Tyres squealing on turns
  - Hard steering
  - Tyres running very hot
  - Uneven tyre wear
  - Poor handling
  - High fuel consumption
  - Possible tyre wall and rim damage (Any 5 × 1) (5)
- 6.3
- Air cooling
  - Water cooling (2)
- [15]**
- TOTAL: 100**