higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MOTOR TRADE THEORY N2

1 December 2023

This marking guideline consists of 5 pages.

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QUESTION 1

1.1

1.1.1	D✓
1.1.2	C✓
1.1.3	B✓
1.1.4	A✓
1.1.5	B✓
1.1.6	C✓
1.1.7	D✓
1.1.8	D✓
1.1.9	A✓
1.1.10	B ✓or C✓

(10 × 1) (10)

1.2

1.2.1	E✓
1.2.2	G✓
1.2.3	L✓
1.2.4	C✓
1.2.5	A✓
1.2.6	I✓
1.2.7	H✓
1.2.8	B✓
1.2.9	D✓
1.2.10	K✓

(10 x 1) (10)
[20]

QUESTION 2

2.1
A – tripod joint✓
B – driveshaft✓
C – rubber boot/bellows✓
D – inner race/star✓
E – cage✓
F – housing/outer race/cup✓ (6)

2.2 The pressure springs on the pressure plate✓ move the release levers towards the release bearing✓ and moves the pressure plate towards the flywheel✓. Friction between the pressure plate, clutch plate and flywheel causes the clutch plate to engage.✓ (5)

2.3
- Prevents slipping.✓
- Ensures that the release bearing is not in continual contact with the release levers on the pressure plate✓
- Too much free-play causes difficult gear selection.✓ (Any two answers) (2)

2.4
- Cables can break unexpectedly✓
- Clutch action is much harder✓
- Water and dust causes the cable to seize ✓ (3)

2.5
- Rotary or vane pumps✓
- Actuators✓
- Air springs/hydraulic actuators✓
- Height sensors✓
- ECU✓ (Any 2 × 1) (2)

[18]

QUESTION 3

3.1 3.1.1
A – synchro hub✓
B – shifting keys✓
C – synchro sleeve✓
D – spring✓
E – synchro sleeve✓ (5)

3.1.2 It synchronises the speed of the gear✓ to enable smooth engagement.✓ (2)

3.1.3 The selector fork.✓ (1)

3.2
- From the input shaft✓
- to the countershaft✓
- across to the matching 1st gear ✓
- up to first gear✓
- to the synchro ring, sleeve and hub✓
- to the output shaft✓ (6)

3.3 3.3.1 They transmit torque equally✓or to the wheel with the most resistance in slippery conditions.✓ (2)

3.3.2
- It is more expensive than a conventional differential.✓
- It requires special oil.✓ (2)

3.3.3
- Incorrect tooth contact pattern✓
- Premature gear failure✓
- Premature bearing failure✓
- Noisy operation✓ (4)

[22]

QUESTION 4

4.1 Ovality refers to the out-of-round measure of a cylinder.✓ It is measured with an inside micrometer,✓ near the top of the cylinder and bottom of the cylinder✓ in the part of the piston travel with readings at 90 degrees✓ to each other and readings are compared to manufacturers specifications. (4)

4.2
- Clogged fuel filter✓
- Worn fuel pump✓
- Faulty fuel pressure regulator✓
- Fuel line leaks✓ (Any 3 × 1) (3)

4.3
A – needle and seat valve✓
B – main jet✓
C – throttle valve✓
D – discharge nozzle✓
E – venturi✓
F – Float unit ✓ (6)

4.4
4.4.1 battery✓
4.4.2 Ignition coil✓
4.4.3 HT leads✓
4.4.4 condenser✓
4.4.5 LT leads✓
(5 × 1) (5)

4.5
- Hard starting✓
- Pinging✓
- High idle speed✓
- Engine running on when switching off ✓ (Any two answers) (2)

4.6
- Camshaft position sensor✓
- Crankshaft position sensor✓
- Ignition ecu ✓ (Any 2 × 1) (2)

[22]

QUESTION 5

5.1.
A – Trailing arm✓
B – Coil spring✓
C – axle beam/frame✓
D – track rod/bar✓
E – shock absorber✓ (5)

5.2 5.2.1
- No adjustment✓
- Air in the system ✓
- Master cylinder faulty ✓ (Any 2 × 1)

5.2.2
- Overfilled master cylinder✓
- Pistons seized✓
- Over adjusted brakes✓
- No brake pedal free-play✓ (Any 2 × 1)

5.2.3
- No brake fluid in the reservoir✓
- Broken brake pipe/line✓
- Master cylinder faulty ✓ (Any 2 × 1)

(3 × 2) (6)

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5.3
- Vertical alignment✓
- Horizontal alignment✓
- High beam direction✓ (3)

5.4
5.4.1 Refrigerant is used to cool down the warm air.✓
5.4.2 Compressor is used to change refrigerant from gaseous state to liquid state.✓
5.4.3 Condenser is used to condense the refrigerant.✓
5.4.4 Evaporator provides cool air into the vehicle passenger area.✓
(4 × 1) (4)
[18]

TOTAL: 100

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