higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MOTOR TRADE THEORY N1

29 November 2023

This marking guideline consists of 6 pages.

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QUESTION 1

1.1
1.1.1 C
1.1.2 C
1.1.3 B
1.1.4 C
1.1.5 C
1.1.6 D
1.1.7 C
1.1.8 C
1.1.9 C
1.1.10 A

(10 × 1) (10)

1.2
1.2.1 False
1.2.2 True
1.2.3 False
1.2.4 True
1.2.5 True

(5 × 1) (5)

1.3
1.3.1 D
1.3.2 E
1.3.3 I
1.3.4 F
1.3.5

(5 × 1) (5)
[20]

QUESTION 2

2.1 2.1.1
- Never exceed the capacity of a hoist.
- Never make adjustments under a hoist while it is moving.
- Make sure the safety devices are working.
- Always position the vehicle in such a way that the weight is distributed evenly.
- Make sure the lift is serviced and conforms in all safety aspects.
- Make sure that people and equipment around you are safe.

(Any ONE correct applicable answer)

2.1.2
- Always wear safety goggles.
- Never exceed the pressure limit on the gauge.
- Make sure there are no leaks on the ram.

(Any ONE correct answer)

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2.1.3
- Never exceed the lifting capacity of a crane.
- Make sure there are no oil leaks on a crane.
- Make sure the wheels are not seized.
- Make sure the ground is level and firm.

(Any ONE correct answer)
(any 3 × 1) (3)

2.2
- Make sure the measuring surfaces are clean.
- Close the micrometer until the measuring points are together and check if the zero lines up.
- Use the adjusting tool to adjust the sleeve until the zero is aligned and then recheck the micrometer. (3)

2.3
- It provides financial compensation for workers injured or contracting diseases in their scope of work.
- It also provides compensation for families of employees who pass on owing to accidents or injuries at the workplace. (2)

2.4
- Employers must maintain all equipment so that it does not affect employees' health or safety.
- Employers must remove any risks or dangers that may affect employees' health or safety.
- Employers must ensure that employees receive proper training.
- Employers must ensure that all PPE is available to employees.

(Any THREE correct applicable answers) (3)

2.5
- Petrol
- Diesel
- Used oil
- Used antifreeze
- Brake fluid
- Battery acid (Any TWO applicable answers) (2)

2.6
- They are always punctual.
- They are always neat and tidy (they wear clean overalls).
- They adhere to rules and safety regulations.
- They are efficient and productive.

(Any other correct applicable answer – max 4) (4)

2.7
A – Cylinder head
B – Valve/rocker/tappet cover
C – Valve train/valve springs/push rods ✔
D – Engine block
E – Flywheel/ring gear
F – Engine sump (6)

2.7 Aluminium/cast iron (1)
[24]

QUESTION 3

3.1 A – Exhaust manifold gasket
B – Exhaust manifold
C – Heatshield
D – Warm-air collector plate (4)

3.2 It's a global computer network on which information is stored✓ and on which information about almost any subject is available.✓ (2)

3.3
- Make of vehicle
- Model of vehicle
- Engine type
- VIN number (Any TWO answers) (2)

3.4
- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint
- Windows Media Player
- Web browser
- Google Chrome (Any TWO correct, applicable answers) (2)

3.5.1 A – Exhaust stroke
B – Compression stroke (2)

3.5.2 C
B
D
A (4)

3.5.3 Only air gets drawn into the cylinder of a diesel engine.✓ With a petrol engine, a mixture of fuel and air gets drawn into the combustion chamber.✓ (2)
[18]

QUESTION 4

4.1 It is to maintain the clearance between moving and stationary components✓ and prevent metal-on-metal contact.✓ (2)

4.2.1
- Gear-type oil pump
- Crescent-type oil pump
- Rotor-type oil pump (3)

4.2.2
- Cheap to manufacture
- Delivers high pressure
- Simple design
- No check valves or springs (Any TWO answers) (2)

4.2.3 Pump is very expensive to manufacture. (1)

4.2.4
- Wear on the tips of the rotor gear.
- Scoring on the rotor gear, driven gear or housing.
- Too low oil viscosity. (3)

4.3
- Sump plug/washer
- Oil seals (crankshaft/camshaft)
- Tappet cover gasket
- Sump gasket
- Mechanical fuel pump (Any other correct applicable answer- max 4) (4)

4.4 When the engine is cold, the thermostat remains closed✓ and prevents circulation of coolant through the engine.✓ When the engine reaches operating temperature, the wax expands and opens the valve,✓ allowing coolant to circulate through the engine and radiator.✓ (4)

4.5
- To prevent the formation of scaling and rust, which cause a blockage in a radiator.
- To maintain the viscosity and efficiency of coolant properties that deteriorate over time. (2)

4.6
- The boiling point of coolant is increased.
- Evaporation of coolant is decreased.
- Smaller radiators can be used.
- The water pump maintains the system's capacity.
- Smaller fans require less power. (Any 3 × 1) (3)

[23]

QUESTION 5

5.1 A – under-inflation
B – over-inflation
C – even/normal tyre wear (3)

5.2
- Seals/secures the tyre to the rim.
- Prevents the rim from spinning inside the tyre. (2)

5.3 Connect the positive clamp of the booster cable from the good battery to the positive terminal of the weak battery.✓ Connect the negative clamp of the booster cable from the good battery to an earth point on the engine or engine bay earth cable. ✓ Switch on the headlights and any auxiliary items of the car to be started.✓ Proceed to start the vehicle and remove the negative clamp first and then the positive clamp.✓ (4)

5.4
- Low outside temperatures decrease a battery's capacity.
- Because of low temperatures, oil is thicker and an engine is difficult to crank.
- Electrolytes can freeze if a battery is undercharged. (Any 2 × 1)

(2)

5.5
- Parallel hybrid system
- Series hybrid system
- Plug-in hybrid system (Any 2 × 1) (2)

5.6 They make use of regenerative braking systems that capture the kinetic energy generated by braking✓ and converts it into the electrical power that charges a vehicle's high-voltage battery.✓ (2)

[15]

TOTAL: 100

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