higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

NOVEMBER EXAMINATION

MOTOR TRADE THEORY N1

11 NOVEMBER 2013

This marking guideline consists of 6 pages.

QUESTION 1

1.1

1.1.1 C

1.1.2 A

1.1.3 A

1.1.4 D

1.1.5 D

1.1.6 C

1.1.7 C

1.1.8 D

1.1.9 B

1.1.10 C

(10 × 1) (10)

1.2 A – Adjustment plate/Fan belt adjustment lever
B – Alternator
C – Fan
D – Fan belt
E – Front pulley

(5)

1.3
- Direct drive fans
- Indirect driven fans
- Electric fans

(Any 2 × 1) (2)

1.4

1.4.1 Warning of moving machinery hazards

1.4.2 Carbon dioxide hazards

1.4.3 Eye protection shall be worn

(3)
[20]

QUESTION 2

2.1 2.1.1 A – Two stroke petrol engine
B – Two stroke diesel engine (2)

2.1.2 C – spark plug
D – exhaust port
E – con rod/big-end bearing
F – transfer port/mixture enters
G – inlet port
H – crankcase (6)

2.2 2.2.1 Society of Automotive Engineers (1)

2.2.2 American Petroleum Institute (1)

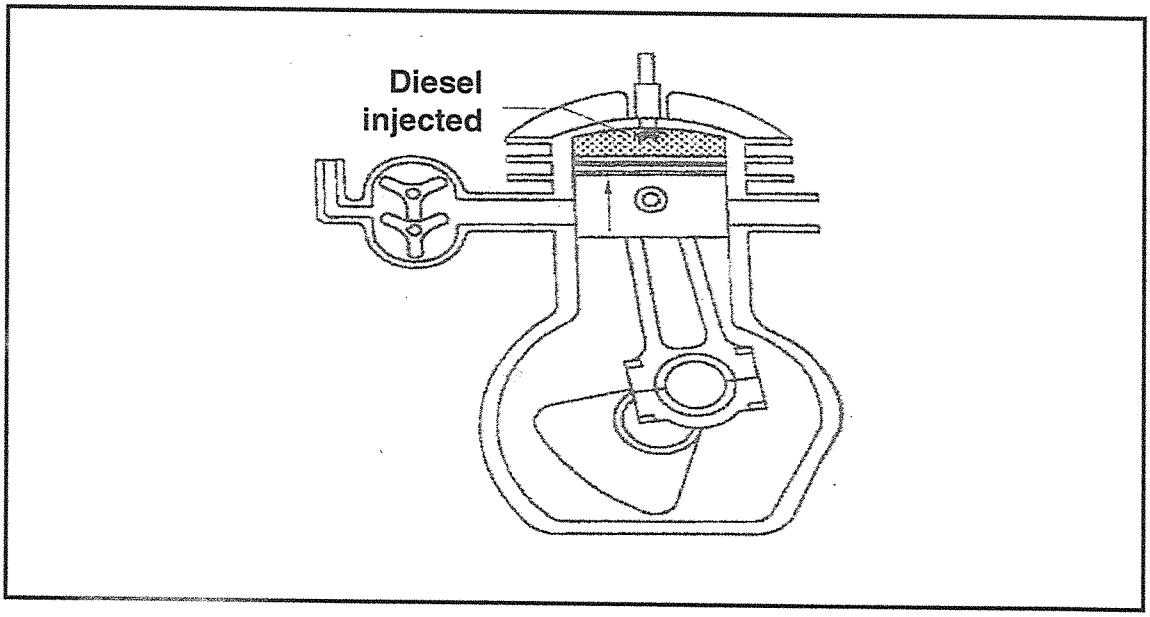
2.2.3 Top Dead Centre (1)

2.2.4 Bottom Dead Centre (1)

2.3
- Full flow filter
- By pass filter

(2)

2.4 COMPRESSION/POWER
The air in the cylinder is compressed by the upward moving piston. The air is compressed and heated up. Just before top dead centre the injectors sprays diesel into the cylinder and the ensuing explosion causes the piston downwards.



(6)
[20]

QUESTION 3

3.1 3.1.1
- It changes reciprocating movement of piston to rotary.
- It distributes oil from the main journals to the big end journals of the connecting rod.

(2)

3.1.2
- It drives mechanical petrol oil pumps and distributor.
- It opens and closes the valves.

(2)

3.1.3
- It serves as a mounting surface for the clutch assembly.
- It helps the starter motor to crank the engine.

(2)

3.2
A – Clutch plate
B – Flywheel
C – Release bearing
D – Clutch cable
E – Clutch pedal
F – Bell housing
G – Release lever

(7)

3.3
- Insufficient free play
- Linkage binding/sticking
- Weak/Broken clutch plate spring
- Grease/Oil on friction surface
- Incorrectly adjusted release lever

(Any 2 × 1) (2)

3.4
- Prevent slipping
- Ensures that release bearing is not in continual contact with release levers

(2)

3.5
- Insufficient coolant
- Slipping fan belt
- Faulty thermostat
- Blocked radiator
- Water leaks
- Faulty radiator pressure cap

(3)
[20]

QUESTION 4

4.1

4.1.1 True

4.1.2 True

4.1.3 False

4.1.4 False

4.1.5 True

(5 × 1) (5)

4.2

- Reduce power loss by reducing friction
- Reduces wear in moving parts of the engine
- Assist in cooling hot components
- Assist in cooling pistons and rings against cylinder walls
- Absorbs shock and reduces noise between moving parts
- Maintain internal cleanliness
- Reduces rusting and corrosion of components

(Any 3 × 1) (3)

4.3

- External oil leaks
- Oil level too high
- Faulty crankshaft ventilation system
- Worn out oil rings/valve stem seals
- Oil pressure too high

(Any 3 × 1) (3)

4.4

- It provides an air cushion between road and car wheels
- It provides friction between tyre and road for traction
- To support the weight of vehicle and distribute over the road
- To offer minimum rolling resistance to motion
- To give safe operating to maximum speed
- To provide comfortable, run quietly of the vehicle
- Absorbs road shock

(Any 3 × 1) (3)

4.5

- A = 2 ply tyre
- B = 4 ply tyre

(2 × 1) (2)

4.6

- Negligence
- Ignorance
- Fooling about
- Tiredness
- Lack of skills
- Untidy working area
- Use of wrong tool/equipment

(Any 2 × 1) (2)

4.7
- Help the engine to reach its normal running temperature quicker
- To maintain operating temperature whatever weather condition
- To meet the requirements of the car interior heating system (Any 2 × 1) (2)

[20]

QUESTION 5

5.1
A – eccentric
B – cam
C – spring
D – plunger
E – outlet valve
F – inlet valve. (6)

5.2
- Difficult to start
- Engine fails to crank (2)

5.3
- Prolonged discharging
- Local chemical reaction in the cells
- Insufficient/Infrequent charging
- The electrolyte level being too low
- Specific gravity of electrolyte being too low (Any 2 × 1) (2)

5.4 To measure the density of the electrolyte in the battery. (1)

5.5
5.5.1 lead light
5.5.2 valve spring lifter
5.5.3 flat screwdriver
5.5.4 gear/bearing puller
5.5.5 Circlip pliers
5.5.6 Pry bar
5.5.7 Ring squeezer
5.5.8 Engineering crane
5.5.9 socket spanner

(9 × 1) (9)

[20]

TOTAL: 100