

2015 HIGHER SCHOOL CERTIFICATE EXAMINATION

**Automotive
Mechanical Technology****Section II****35 marks****Attempt Questions 16–21****Allow about 50 minutes for this section**

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Question 16 (4 marks)

Ten litres of engine oil have been spilled on the workshop floor.

4

Outline how to clean up and dispose of the waste.

Put rags ^{or} ~~and~~ saw dust on the spill
allow some time for the oil to be
soaked up. Pick up the rags or saw
dust. put the rags in the ~~rag~~ waste
rag bins and ~~→~~ put the saw
dust back into the bin where it is
stored.

Question 17 (4 marks)

- (a) Where should a workshop dispose of trade waste water?
- 1

In the waste oil bin if it has mixed with anything. If not tip down the storm water drain, as it is only water.

- (b) Outline TWO environmental consequences of incorrect trade waste disposal.
- 3

~~I tipped down a storm water drain~~
~~the water~~ tipping oil or coolant ~~will~~ ~~pollute~~
~~the water~~ down a storm water drain will pollute the water.

Throwing waste oil drums outside can be bad because they can leak oil all over the grasses and plants ~~which~~ which will kill the plants and grass as well as the animals that eat them.

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**Automotive
Mechanical Technology****Section II (continued)****Question 18** (3 marks)

All new vehicles registered in Australia need to be compliant with Australian Design Rules (ADR).

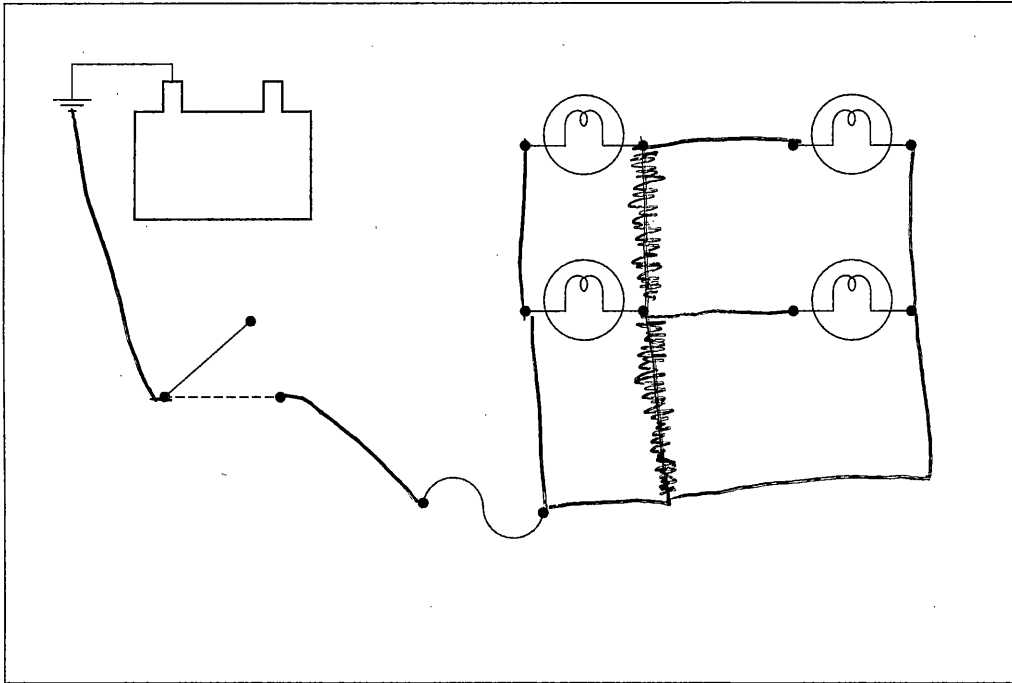
3

What is the purpose of these rules?

To ensure that vehicles are safe
for people to drive on the road
and that all the components in the vehicles
will not fail and cause an accident.

Question 19 (7 marks)

- (a) Construct a parking light circuit in the box below, using all the symbols provided. 5



- (b) Explain how you would use a voltmeter to test voltage drop to the parking/tail light circuit. 2

connect the voltmeter onto the circuit
 place the earth wire onto a suitable
 spot and place the test probe
 onto the components.

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Automotive
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Section II (continued)

Question 20 (8 marks)

- (a) Describe how the motor sport industry has influenced the development of vehicle brake technologies. 3

It has because the vehicle's in ~~the~~ motor sports are extremely fast and require very good brake technology. This has pushed companies to create better and more efficient brake technologies to suit there needs.

- (b) Explain how an anti-lock braking system (ABS) prevents wheel lock-up in emergency braking conditions. 5

ABS allows a degree of movement in the wheel even when you slam on the brake's and allow you to control the car better instead of it sliding all over the road.

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**Automotive
Mechanical Technology****Section II (continued)****Question 21 (9 marks)**

- (a) Why should a workshop vice be left with a gap between the jaws when it is not in use? 1
So ~~it~~ the jaws don't crack when
~~doesn't crack the jaws~~
the metal expands when it gets cold.
- (b) Under what circumstances should the drilling speed be changed on a pedestal drill? 2
when using a larger diameter drill
bit
- (c) What precautions should be observed when using an electric welder in the workplace? 2
That the cords are in good condition
and not frayed or damaged.
test that the welder is working properly
and doesn't create a hazard.

Question 21 continues on page 16

Question 21 (continued)

- (d) Describe the advantages of using electric-powered tools compared with air-powered tools. 4

Electric tools ~~are~~ ^{can be} easier to find

Can be cheaper to buy

Some tools are only powered by electricity.

Can be easier to fix when they get broken.

Can be cheaper to fix when they get broken.

End of Question 21