

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.

Mop up spilt oil and dispose contents of mop into a container for safe disposal at an oil collection facility

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Question 17 (4 marks)

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

at a safe site where waste water is accepted

.....

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

Asbestos getting left behind can take its toll not only on the environment but to the people that are not aware that it is around.

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Also leaving behind rubbish and waste that should have been taken to a waste disposal facility can fly far away thanks to the wind and become a problem for all sorts of people.

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**Automotive
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Question 18 (3 marks)

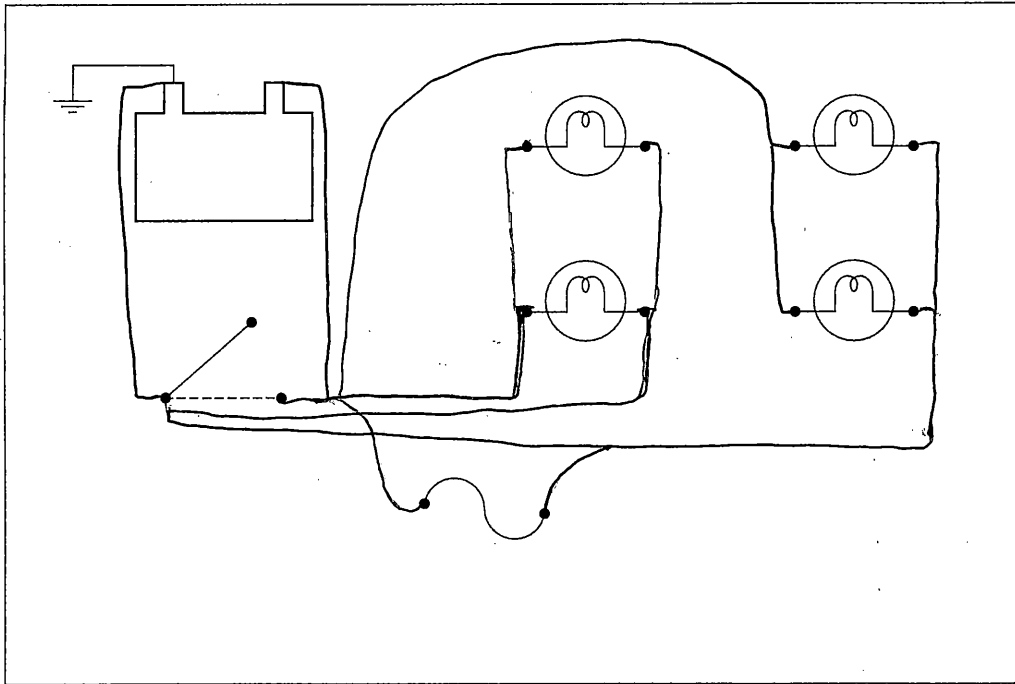
All new vehicles registered in Australia need to be compliant with Australian Design Rules (ADR). 3

What is the purpose of these rules?

The purpose of these rules are to ensure all the cars on our roads can be as safe as they can be to avoid any fatalities or accidents on our roads.

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**

You would put your positive clip on the battery
 and with your negative clip, test each circuit to
 find the fault.

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Automotive
Mechanical Technology**Section II (continued)****Question 20 (8 marks)**

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

By having motorsport drivers push themselves harder and harder each year, companies are in need of finding more powerful and efficient brake technologies to use in their race cars which we then bring to our everyday cars for that little bit better and safer performance.

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

When ABS detects that a wheel is spinning faster than it should be, it will send a message to the computer to counteract that wheel. eg. the back right hand side wheel became faster spinning than usual around a corner, the ABS system would kick in and apply brakes to that wheel to keep the car in control.

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**Automotive
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- (a) Why should a workshop vice be left with a gap between the jaws when it is not in use? 1

So it does not keep strain on the vices' internals whilst it's not in use

- (b) Under what circumstances should the drilling speed be changed on a pedestal drill? 2

The drilling speed on a drill should be changed once you decide the thickness of the material that's being used and the type of material it is.

- (c) What precautions should be observed when using an electric welder in the workplace? 2

Ensure your welder is adjusted right to the type of welding you're doing and that it has an up to date safety tag on it.

Question 21 continues on page 16

Question 21 (continued)

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

There are a lot of benefits of using electric powered tools compared to air powered tools such as with an electric powered tool, you will be able to go cordless with your tools which is a lot more helpful with manoeuvrability and you also do not need to be in reach of a big compressor just to use your tools.

End of Question 21