

## 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.

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**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.

The first step ~~to~~ for an oil spill is to block off any possible way the oil can escape into the environment, grab the large sponge that can contain and soak up the oil. ~~Put~~ Then put the oil into ~~an~~ drums or an area where it can be collected and disposed of properly. Then contact workcover to let them know of the incident.

**Question 17** (4 marks)

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

A workshop should dispose trade water waste in a secure tank/pit where ~~it~~ it cannot escape from

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

Two environmental consequences of incorrect trade waste disposal include: ~~waste~~ ~~large~~ ~~mass~~ ~~of~~ pollution and contamination to waterways which can result to the ~~harm~~ <sup>harm</sup> of aquatic life, and can also cause to plant life.

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

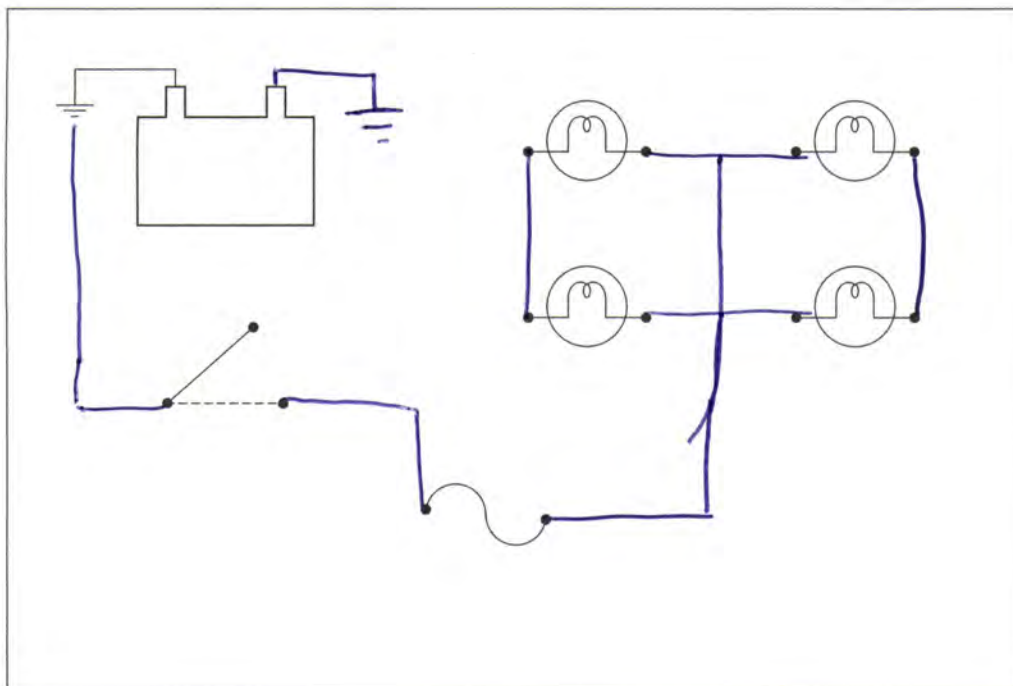
All new vehicles registered in Australia need to be compliant with Australian Design Rules (ADR). 3

What is the purpose of these rules?

The purpose of this is to make  
sure that the car is safe to  
drive on the roads, <sup>as functions properly</sup> can provide you  
with safety if <sup>you're</sup> in an accident.  
~~and the~~

**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 use a voltmeter to test the voltage drop to the parking tail / light circuit by placing the probes on the fuse switch and then checking the volts at the tail light



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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

The motor sport industry has influenced the development of vehicle braking technologies to minimize accidents, provide drivers with outstanding and instant braking at high speeds, ~~This is done~~ also making braking in wet conditions ~~through electrical braking~~ safer through the use of advanced braking systems.

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

Anti-lock braking system works in preventing wheel lock-up in emergency braking situations by when there's is a sudden jam of the brakes these brakes will ~~release~~ <sup>release</sup> off and on allowing the brakes not to lock up so you don't lose control of the vehicle.

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## 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

There should be a gap <sup>left</sup> between the jaws of a vice ~~to~~ when it's not in use so it doesn't jam up and shows that it is not being used.

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

The drilling speed on a pedestal drill should only be changed when you're cutting through a very hard or large ~~piece~~ piece of material that requires more speed.

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

Precautions that should be observed include flammable ~~liquids around~~ <sup>or any types</sup> of liquids around, protection is used to minimize harm for yourself and others, exhaust extractors are used to remove fumes from the workplace.

Question 21 continues on page 16

## Question 21 (continued)

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

The advantages of using electric powered tools compared with air powered tools are:

- <sup>less</sup> ~~the~~ risk of explosions due to high air pressures <sup>used</sup> ~~in~~ with air tools.
- <sup>Not as</sup> ~~less~~ noisy
- Provide more power
- Faster to work with, ~~and~~ more efficient
- ~~Also~~ Less flying objects

End of Question 21