

# 2009 HSC Automotive Sample Answers

This document contains 'sample answers', or, in the case of some questions, 'answer may include'. These are developed by the examination committee for two purposes. The committee does this:

- (a) as part of the development of the examination paper to ensure the questions will effectively assess students' knowledge and skills, and
- (b) in order to provide some advice to the Supervisor of Marking about the nature and scope of the responses expected of students.

The 'sample answers' or similar advice, are not intended to be exemplary or even complete responses. They have been reproduced in their original form as part of the examination committee's 'working document'. While the handwritten notes have been typed for legibility, no further editorial change or addition has occurred.

## Section II

### Question 16

***Sample answer/Answers could include:***

Safe work practices

1. Absorption (through skin) – P.P.E – overalls, gloves, do not use solvents to wash hands, etc, safety glasses, boots.
2. Inhalation (breathe in) – P.P.E air-fed mask or cartridge mask, gloves, overalls, ventilated area or spray booth/exhaust extraction.
3. Ingestion (through mouth) – washing hands, etc before meals, P.P.E – mask, gloves, safety glasses, ventilated areas, exhaust extraction.

**Question 17 (a)**

*Sample answer/Answers could include:*

1. Vehicle identification number or VIN
2. Vehicle make
3. Vehicle model
4. Vehicle build date

**Question 17 (b)**

*Sample answer/Answers could include:*

1. Do you have the part in stock?
2. Estimated time of arrival/delivery (i.e. When will the part be delivered?)

**Question 18 (a)**

*Sample answer/Answers could include:*

<i>Item</i>	<i>Component name</i>	<i>Component function</i>
1	Steering rack	Steer the vehicle
2	Stabiliser bar, sway bar or anti-roll bar	Reduce body roll by opposing body movement
3	Constant velocity CV joint	Drive the wheel while allowing for suspension movement and turning
4	Suspension strut or shock absorber	Absorb the energy from a bump
5	Disk rotor, brake rotor or break disk (disk is incorrect)	Brake pad clamp onto the stop/slow down vehicle

**Question 18 (b)**

*Sample answer/Answers could include:*

<i>Possible fault</i>	<i>Test to perform</i>
Loose fan belt	Test belt for correct tension
Faulty battery	Perform battery load test
Alternator not charging	Perform alternator output test

**Question 19 (a)**

*Sample answer/Answers could include:*

To isolate the circuit and prevent an accidental short to ground while working around the battery.

**Question 19 (b)**

*Sample answer/Answers could include:*

- Cold cranking amperes (amps)
- Capacity of the battery

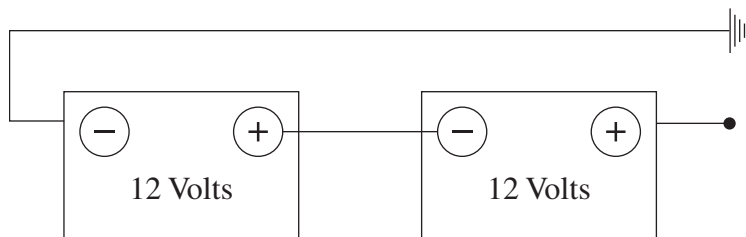
**Question 19 (c)**

*Sample answer/Answers could include:*

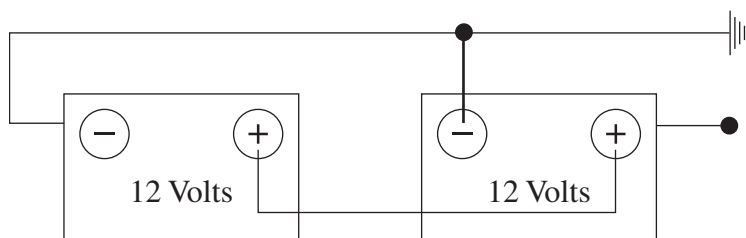
<i>Item</i>	<i>Name</i>	<i>Function</i>
1	Fuse	Provide circuit protection
2	Switch	Turn circuit on and off
3	Earth	Provide pathway for current flow

**Question 19 (d)**

*Sample answer/Answers could include:*


**Question 19 (e)**

*Sample answer/Answers could include:*



**Question 20*****Sample answer/Answers could include:***

1. Administers and enforces compliance with:
  - Occupational health and safety (OHS)
  - Injury management and workers compensation legalisation
  - Codes of practice/s
2. Issues fines and penalties for breaches of the OHS Act– to individuals and businesses
3. Covers areas of:
  - Manual handling
  - Workshop signage
  - Storage and handling of dangerous goods
  - Risk assessments
  - Work environments
  - Workshop facilities

**Question 21*****Sample answer/Answers could include:***

ONE of the following:

- Motor Traders Association of Australia
  - National peak body for the whole of the Retail Service and Repaired sectors of the Australian Automotive Industry
  - It assists members through advice and services during their day-to-day business activities
- Motor Traders Association of New South Wales
  - Assists the motor industry through advice and services
  - Lobbies Government on behalf of their members
  - It is an RTO– supplying training to the industry
  - Has a superannuation fund for its members
- Motor Vehicle Repair Industry Authority
  - Sits within the Office of Fair Trading
  - Responsible for the regulation of the vehicle repair industry in NSW
  - Issues certification and licences for motor vehicle repair businesses
  - Issues certification and licences for tradespeople working in licenced repair businesses
  - Assists vehicle owners and licenced repairers to settle disputes
- Institute of Automotive Mechanical Engineers
  - Association for people and organisations in the automotive industry
  - It is an RTO– supplying training to the industry
  - Creates awareness of technical information and sharing of expertise
- Australian Manufacturing Workers Union
  - Aims to ensure members receive the pay, conditions, safety and respect they deserve at work
  - Has a superannuation fund for its members
- Automotive Training Australia
  - Federal body
  - Responsible for the content and delivery of automotive training packages throughout Australia
- Australian Automotive Aftermarket Association
  - Is a national body
  - Is an industry body – promoting re-manufacturing, wholesaling, distribution, and retailing of vehicle parts, tools and accessories and services

## Section III

### Question 22

*Sample answer/Answers could include:*

THREE of the following:

- Sector name: manufacturers and importers  
Sub-sectors:
  - Heavy/ light vehicles
  - Plant/ equipment
  - Motorcycle/ outdoor
  - Marine
- Sector name: motor vehicle dealers  
Sub-sectors:
  - New/ used sales
  - Parts/ accessories sales
  - Service
  - Repair
- Sector name: aftermarket service providers  
Sub-sectors:
  - Specialist outlets
  - Local workshops
  - Service stations
  - Mobile organisations
- Sector name: specialist enterprises (or ‘specialists – acceptable’)  
Sub-sectors:
  - Transmissions/ gearboxes (or ‘drivelines’ – acceptable)
  - Brakes/ steering/ suspension
  - Auto electrical (or air conditioning – acceptable)
  - Cooling systems (or radiators – acceptable)
- Sector name: repair industry  
Sub-sectors:
  - Body repairers
  - Spray painters
  - Mechanical repairers
  - Insurance companies
- Sector name: vehicle/ component recycling/ disposal  
Sub-sectors:
  - Auto dismantlers
  - Metal recyclers
  - Solvents/ hazardous chemical recyclers
  - Refrigerant recyclers

**Question 23*****Sample answer/Answers could include:***

Student should clearly identify the characteristics and potential environmental impact of hazardous materials and products used or found in the automotive industry.

- Chemicals
- Solvents
- Adhesives
- Acids
- Flammable materials
- Paints
- Oils
- Petroleum-based substances
- Explosive goods
- By-products
- Rubbers
- Asbestos
- Glass
- Hydrocarbons
- Refrigerants
- Metals
- Heavy metals

Student should provide explanations as to how potential hazards can be managed in the automotive workplace.

Specific focal areas should include:

- Storage and handling of dangerous goods
- An awareness of the roles/ responsibilities of the NSW Department of Environment and Conservation incorporating Environment Protection Authority (EPA)
- Awareness of legislative responsibilities of the workplace/ organisation and an individual worker
- Awareness of penalties for corporations and individuals regarding noise offences, waste disposal, oil/ fuel spills and acid disposal.
- Understanding of the penalty tier system and penalty units

Examples provided by student should cover:

- Identify and avoid hazards to stormwater
- Identify and avoid hazards to air quality
- Identify and avoid noise hazards

Consequences of poor environmental practice;

- Waterways
- Neighbouring properties
- Air quality
- Transport and logistics

**Question 24*****Sample answer/Answers could include:***

Communication involves various different types of ways that people relate to each other. These intricate relationships affect the operation of workshops within the automotive industry.

Types of communication in the Automotive Industry include:

**Written:**

A selection of any of the following:

- Messages
- Memos
- Emails
- Faxes
- Customer records
- General correspondence
- Job cards
- Invoices
- Quotes
- Inventory/ price lists
- Order forms
- Accident reports
- Signage

**Verbal:**

A selection of any of the following:

- Customer relations
- Telephone
- Colleague discussions, instructions
- Safety instructions
- Questioning
- Listening

**Non-verbal:**

A selection of any of the following:

- Body language
- Gestures
- Subtext/ subliminal
- Uniform or attire
- Use of personal space
- Hand signals

When any of the aforementioned communication forms are executed effectively within the automotive industry, the following benefits are generally achieved:

- Less re-work
- Improved safety
- Faster turn around of repair
- Less re-ordering of stock
- Smaller inventory requirement
- Greater customer satisfaction
- Improved staff morale
- Improved profits
- Improved business reputation
- Improved rate of returned customers

Examples of problems which can develop due to poor communication, include:

- Loss of profits
- Decreased business activity due to poor reputation
- Greater amount of incorrect/ inaccurate or unnecessary work
- Greater OHS incidents/ accidents
- Disgruntled customers

In conclusion, effective communication is imperative within the automotive industry and it is a crucial component to successful management of a workshop. Not only is communication central to safety issues, but it is also a main driver for increased profits through improved efficiency.