



Australian Government

A U S T R A L I A N  
A P P R E N T I C E S H I P S

Your Life. Your Career. Your Future.

# Automotive

Practice Aptitude Quiz

# Practice Aptitude Quiz

## Part 1: About this quiz

Use this quiz to prepare for an Apprenticeship in the Automotive industry

This quiz:

- Is NOT a formal assessment tool or pre-requisite for any job application
- Shows key learning standards for the Automotive industry
- Has been developed with the help of industry leaders, TAFE and high schools

### Quiz details

This quiz will:

- Take approximately 90 minutes to complete
- Ask you numeracy and literacy questions specific to the Automotive industry
- Assess your literacy and numeracy at a Year 10 standard
- Allow you to use a calculator
- Share correct answers at the end

### Who should take this quiz?

You should complete this quiz if you:

- Are thinking about starting an Apprenticeship in the Automotive industry
- Want to practise for a formal aptitude test

### Need help with your literacy and numeracy skills?

If you want to improve your literacy and numeracy skills, reach out to any of the below:

- Australian Apprenticeship Support Network providers
- Your Registered Training Organisation when you start training
- Reading Writing Hotline:  
1300 655 506  
[www.readingwritinghotline.edu.au](http://www.readingwritinghotline.edu.au)
- Careers advisers and your teachers (if you're in high school)

### More information about the Automotive industry

Visit [www.yourcareer.gov.au/industries/s/other-services](http://www.yourcareer.gov.au/industries/s/other-services)

On this page you'll be able to:

- See the most popular Automotive industry occupations
- Get general information and statistics about the industry
- Search for Automotive industry courses

# Practice Aptitude Quiz

## How to use this quiz

This is an interactive form that can be filled out on your computer.

You can either:

- Fill it out on your computer; OR
- Print it out; OR
- Write your answers down on paper as you go.

Use the answers section at the end of the quiz to see how you went.

## How to complete this quiz on your computer

1. Download and save the quiz onto your computer
2. Open the file from your computer
3. Fill in the form using a keyboard and mouse

# Practice Aptitude Quiz

## Part 2: The Quiz

### Section 1: Language and Literacy

1. Write the following vehicle components in alphabetical order:

Timing cover \_\_\_\_\_

Cam shaft \_\_\_\_\_

Rocker cover \_\_\_\_\_

Valve \_\_\_\_\_

Cam gear \_\_\_\_\_

Sump \_\_\_\_\_

Piston \_\_\_\_\_

Alternator \_\_\_\_\_

Bonnet \_\_\_\_\_

Cam timing belt \_\_\_\_\_

2. Write the plural of the following words:

Mechanic \_\_\_\_\_

Woman \_\_\_\_\_

Branch \_\_\_\_\_

Child \_\_\_\_\_

Sheep \_\_\_\_\_

3. Select the correct spelling of each word:

Dynamometer

Dinamometer

Dynamonitor

Dinomonitor

Vakuum

Vacoom

Vacuum

Vaccum

Diferencial

Differential

Differentil

Differenteal

# Practice Aptitude Quiz

- 4. The following text has 10 spelling errors in it. Correct those errors and list them in the order you find them in the table on the following page:**

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If the recipient of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited and may be unlawful.

1. _____	6. _____
2. _____	7. _____
3. _____	8. _____
4. _____	9. _____
5. _____	10. _____

- 5. The following text has five spelling errors in it. Correct those errors and list them in the order you find them in the text:**

Maintenance schedules for cars are very important. Lubrication and the replacement of worn spark plugs need regular attention.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

e. \_\_\_\_\_

# Practice Aptitude Quiz

## 6. Read the following article and answer the questions that follow:

Cars of today rely more and more on computers, compared to the cars of the past. Technology is getting more advanced and the automobile industry has always aimed to use that to their advantage. The whole car is becoming a computer; more and more functions that used to be operated manually are now done electronically. The millions of microprocessors do a large amount of tasks. The engine and parts under the hood power the car, but it's the microprocessors that tell it what to do. You would be surprised exactly how many functions have something to do with computers.

Some of the major microprocessors are: the airbag module; Engine Control Unit (ECU) which controls the engine functions; the driver's door module; the climate control module; the cruise control module; the transmission controller which controls automatic transmission; and the ABS module which controls the anti-lock brakes and may handle the traction-control and stability-control systems.

The most important microprocessor is the ECU. It controls engine functions like the spark timing and ensuring the correct fuel to air mixture intake into the engine block. It can also manage the emissions and the fuel economy of the car. It does so by creating the perfect ratio of fuel to air.

Cars today may have as many as 100 microprocessors, many of which make them easier to service. Every engine, every vehicle and every computer system is different - but all the sensors and all the output devices must be in perfect "sync" for cars, minivans, trucks and 4WDs to run efficiently.

Some of the reasons for the increase in the number of microprocessors are:

- The need for sophisticated engine controls to meet emissions and fuel-economy standards.
- Advanced engine diagnostics and repair.
- A reduction of the amount of wiring in cars.
- New safety features.
- New comfort and convenience features.
- New entertainment and communication features.

### Questions:

- a. Name 3 of the microprocessors commonly used in cars:
  
  
  
  
  
  
  
  
  
  
- b. What is one reason for the increase in the number of microprocessors?

# Practice Aptitude Quiz

- c. What is the most important microprocessor and what function does it have?

## 7. Read the following passage and answer the questions that follow:

### Automotive Mechanic

The job of the Automotive Mechanic has certainly changed in the last decade with the introduction of computer technology. The automotive industry has become more sophisticated and high-tech, and so too have the skills of the Automotive Mechanic.

What sort of training do you need?

Becoming an Automotive Mechanic usually requires the completion of an Australian Apprenticeship, which is based on a Certificate III level qualification in your desired field of Mechanical Technology.

The length of the training can vary and will involve both on-the-job and off-the-job components. The off-the-job training is provided through a training provider.

Employers generally require at least the completion of Year 11 with good results in English, Maths and Science. Many people complete Year 12 before entering an Australian Apprenticeship.

You may be able to start training for this occupation while still at school.

Automotive Mechanics may progress to positions such as a Service Manager, Workshop Foreman, Service Advisor, Technical Sales Representative, Technical Officer or Diagnostic Specialist.

What sort of things do Automotive Mechanics do?

- Discuss problems with car drivers or vehicle operators to discover faults, listen to engines, fit and operate special test and diagnostic equipment and test drive vehicles;
- Repair or replace worn and faulty parts by removing and dismantling assemblies;
- Reassemble, test, clean and adjust repaired or replaced parts or assemblies, use various tools and equipment to make sure they are working properly and put them back into the vehicle;
- Diagnose, repair and replace engine management and fuel injection components;
- Inspect vehicles and issue road-worthiness certificates or list the work required before a certificate can be issued.

You may enjoy being an Automotive Mechanic if you:

- Are interested in practical and manual work;
- Are able to work with hand tools;
- Have a technical aptitude;
- Have problem-solving skills.

# Practice Aptitude Quiz

Select the correct response to the following questions:

a. To become an Automotive Mechanic, I need to complete:

A Bachelor Degree in Automotive

A Certificate I in Automotive

An Automotive Apprenticeship

A Masters Degree in Automotive

b. Employers usually require you to have completed at least:

Year 10

Year 11

Year 12

Year 13

c. Which of these skills do you believe an Automotive Mechanic needs?

Listening

Communication

Writing

All of the above

d. Automotive Mechanics:

Make inspections of vehicles

Issue roadworthiness certificates

Repair engine components

All of the above



# Practice Aptitude Quiz

8. **Personal Protective Equipment (PPE) includes clothing and equipment designed to be worn by a person to protect them from risks of injury or disease. Below is a list of PPEs commonly used in automotive workshops:**

<b>PPE</b>	<b>Use in a Mechanical Workshop</b>
Safety glasses	To protect eyes from debris when panels are sanded.
Overalls	Protects against fluids or chemicals causing damage to clothing and skin. Essential when doing spray work.
Gloves (light weight)	Protects hands from solvents and fluids.
Gloves (heavy weight)	Protects against chemicals, for example when using a parts wash.
Face shield	To protect eyes and face from flying materials created when grinding or drilling.
Steel capped boots	Protects feet/toes from injury caused by dropping heavy items.
Ear muffs or ear plugs	Used to reduce hearing damage caused by loud noises such as air rattle gun, air chisel, hammering.
Respirator	Protects lungs from inhalation of dust and fumes.
Leather apron	Protects body and clothing from burns generated from welding.
Leather gloves	Protects hands and arms from burns generated from welding.
Welding mask	Protects eyes from damage from welding.
Cap/hair net	Reduces risk of hair getting caught in rotating equipment such as drills and grinders.

- a. Looking at the table, what PPE would you use to avoid burns when undertaking a welding job?
- b. When working with fluids or chemicals what PPE would you use?

# Practice Aptitude Quiz

- c. How can you protect your feet from falling heavy objects?
  
  
  
  
  
  
  
  
  
  
- d. To prevent dust inhalation and protect your hearing from loud noises what PPE would you wear?

**9. What personal protective equipment do you think you would need in the following situations?**

- a. Grinding:
  
  
  
  
  
  
  
  
  
  
- b. Handling a car battery:
  
  
  
  
  
  
  
  
  
  
- c. Spray painting a car:
  
  
  
  
  
  
  
  
  
  
- d. Panel beating:
  
  
  
  
  
  
  
  
  
  
- e. Sanding:

# Practice Aptitude Quiz

10. Below is a photo of typical automotive workshop:



a. What major hazard can you see?

b. What measures have been put in place to minimise the hazard?

# Practice Aptitude Quiz

## Section 2: General Industry Knowledge

1. Below is a list of vehicle components. Write the name of the component below the correct picture:

Cylinder block

Sump

Spark plugs

Alternator

Rocker cover

Piston

Fuel injector

Carburettor



a.



b.



c.



d.



e.



f.



g.



h.

# Practice Aptitude Quiz

2. Below is a list of tools. Write the name of the tool below the correct picture:

Open Ended Spanner

Vice Grips

Needle Nose Pliers

Hacksaw

Centre Punch

Tin Snips

Micro Meter

Phillips Head Screwdriver



a.



b.



c.



d.



e.



f.



g.



h.

# Practice Aptitude Quiz

3. Below is a list of car body parts. Write the name of the body part below each picture:

- Bumper Bar      Door      Skirt      Bonnet      Boot      Wing Mirror      Windscreen      Wiper Arm



a.



b.



c.



d.



e.



f.



g.



h.

# Practice Aptitude Quiz

4. Which of the following words reflect electrical terms or components?  
Select all the correct responses:

Drive shaft

Wheel

Spring

Resistor

Volt

Current

Washer

Ohms

Diode

Cylinder

# Practice Aptitude Quiz

## Section 3: Numeracy

1. Which unit from the table below would you use to measure:

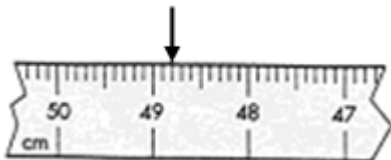
Units:

Kg	ml	km/hr	m <sup>2</sup>
AUD	m	min	°C

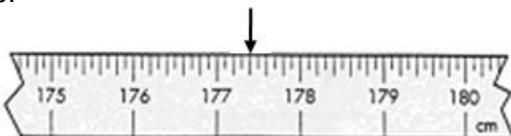
- a. Length \_\_\_\_\_
- b. Time \_\_\_\_\_
- c. Temperature \_\_\_\_\_
- d. Weight \_\_\_\_\_
- e. Area \_\_\_\_\_
- f. Speed \_\_\_\_\_
- g. Volume \_\_\_\_\_
- h. Cost \_\_\_\_\_

2. What are the following tape readings?

a.



b.



3. Write the following decimal numbers, from largest to smallest:

8.23	82.3	0.823
------	------	-------



# Practice Aptitude Quiz

4. From the list of numbers in the table below, select the one which represent the questions:

Numbers:

$\frac{3}{8}$	$35^\circ$	25%
5:4	16.37	$2\frac{3}{4}$

- a. Percentage \_\_\_\_\_
- b. Decimal Number \_\_\_\_\_
- c. Fraction \_\_\_\_\_
- d. Mixed Number \_\_\_\_\_
- e. Ratio \_\_\_\_\_
- f. Angle \_\_\_\_\_

5. Convert the following:

- a. 8 kilometres to metres \_\_\_\_\_
- b. 3.5 kilograms to grams \_\_\_\_\_

6. Find the decimal number halfway between:

- a. 0.6 and 0.8 \_\_\_\_\_
- b. 2.8 and 2.9 \_\_\_\_\_

7. Find the value of the following:

- a.  $2^3$  \_\_\_\_\_
- b.  $\sqrt{36}$  \_\_\_\_\_

8. Round:

- a. 35.6754 to two decimal places \_\_\_\_\_
- b. 25.8 to the nearest tens \_\_\_\_\_

# Practice Aptitude Quiz

9. Select the best estimate for:

a.  $4,209 \times 63$

240,000

420,000

24,000

b.  $60,000 \div 28$

200

2,000

20,000

4,000

10. Add the following values:

a. \$2, \$21.45 and \$8.23

---

b. 18.32, 471.019 and 315

---

11. Subtract the following values:

a.  $5,218 - 1,784$

---

b.  $43.18 - 29.461$

---

12. Multiply the following values:

a. 6.87 by 10

---

b. 13.8 by 3

---

c. 46.2 by 8

---

13. Divide the following values:

a. 3.45 by 10

---

b. 3,024 by 4

---

c. 56.2 by 0.2

---

14. Select the correct answer to  $18.642 \div 0.02$ :

9.321

93.21

0.9321

932.1

15. What fraction is halfway between  $\frac{1}{4}$  and  $\frac{3}{4}$ ?

# Practice Aptitude Quiz

16. Add the following:

a.  $\frac{1}{4}$  and  $\frac{1}{2}$

---

b.  $\frac{2}{3}$  and  $\frac{5}{6}$

---

c.  $3\frac{1}{4}$  and  $\frac{1}{8}$

---

17. Calculate the following:

a.  $\frac{5}{6} - \frac{1}{4}$

---

b.  $2\frac{1}{14} - \frac{4}{7}$

---

18. Express the following as a simplified fraction:

a. 0.75

---

b. 2.6

---

c. 30%

---

19. Estimate the size of the following angles by selecting the appropriate answers from the list below:

a.



$30^\circ$

$80^\circ$

$120^\circ$

b.



$30^\circ$

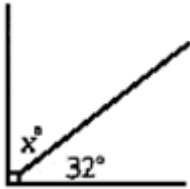
$80^\circ$

$120^\circ$

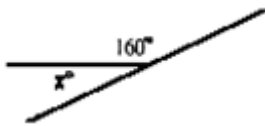
# Practice Aptitude Quiz

20. Find the value of  $x^\circ$  in the following diagrams:

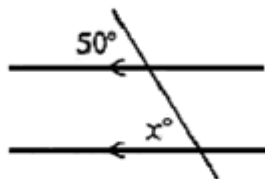
a.



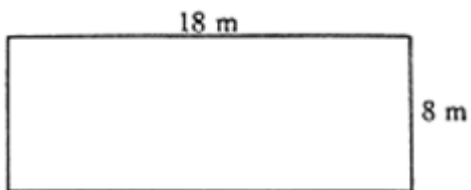
b.



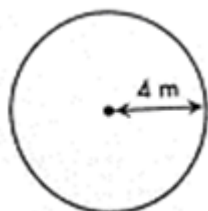
c.



21. Find the perimeter of this rectangle:

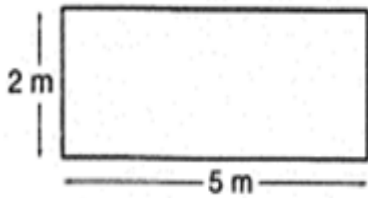


22. Find the circumference of this circle to one decimal place? (Use  $\pi = 3.14$ )

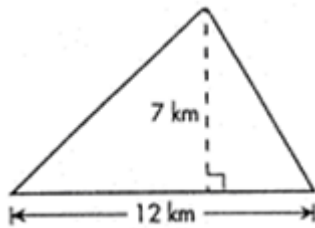


# Practice Aptitude Quiz

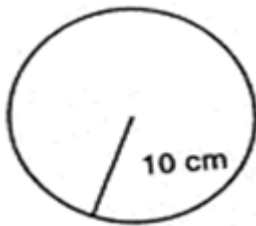
23. What is the area of the rectangle?



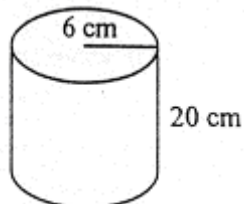
24. Find the area of the triangle:



25. Find the area of this circle to one decimal place: (Use  $\pi = 3.14$ )



26. An oil can in the shape of a cylinder has a radius of 6 cm and a height of 20 cm. What is the volume of the can? (Use  $\pi = 3.14$ )



# Practice Aptitude Quiz

**27. Evaluate the following:**

- a. 10% of \$44
- b. 25% of 12.84

**28. Christos scored 80% in his automotive exam. There were 25 questions. Find:**

- a. How many questions did Christos get right?
- b. How many questions did Christos get wrong?

**29. Michelle, a spare parts interpreter for GTA Automotive, earns \$960 a week. She gets a pay rise of 5%. What is her new weekly wage?**

**30. A new 4-cylinder automatic car costs \$16,000. The price was reduced by 10%. Find:**

- a. The amount the car was reduced by?
- b. The new cost of the car?

**31. The price of one tyre is \$120. Jamie gets 10% discount for paying cash. How much did Jamie pay for four tyres with the discount?**

# Practice Aptitude Quiz

32. Three workers each produced the following number of oil filters on a day: 108, 143 and 127. What is the total number of oil filters produced that day?
33. A bolt assembly for a car's rear spring consists of a bolt of mass 8.34 g, a washer with mass 1.72 g, a lock washer with mass 0.8 g and a hexagonal nut with mass 2.3 g. What is the total weight of this bolt assembly?
34. The weight of three bolts is 52 g, 49 g and 61 g. What is the average weight of the bolts?
35. Two numbers add up to 40. Find the other number if one is 15?
36. After work, you and your four co-workers share a meal and split the costs evenly. If the bill totalled \$168, how much did each person have to pay?
37. Peta the mechanic is paid \$22.00 per hour plus overtime at time and a half (or one and a half times the normal pay rate) for any hours over 35 hours. If she worked 42 hours, calculate:
- Her pay for the first 35 hours of work only:
  - The overtime pay only:
  - The total pay:

# Practice Aptitude Quiz

38. Daniel is a mechanic and he uses feeler gauges to set or measure gaps between two components in a car such as when checking spark plugs, doing a valve adjustment, or setting the distributor.

He has six different size feeler gauges: 0.015 mm, 0.02mm, 0.04 mm, 0.08 mm, 0.12 mm and 0.15 mm.

What combination of gauges would he use to check the size of the following gaps?

- a. 0.2 mm
- b. 0.095 mm

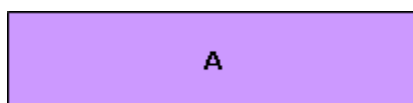
39. Robert drove 300 km in 6 hours. Calculate his average speed given that speed = distance divided by time:

40. If pressure = force/area, find the pressure if force = 60 and area = 20:

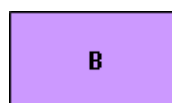
41. If pressure = force/area, make force the subject of the formula:

42. A 5 litre V8 vehicle uses unleaded petrol in the ratio of 3:1 when compared with a 4-cylinder 1.2 litre vehicle. If there were 24 litres of unleaded petrol in a drum to be shared between the two vehicles, how much would you pump out for the V8 vehicle to use? Assume you want them to run for the same amount of time.

43. The length of a truck's tray top in Picture A = 5m. The length of a utility's tray in Picture B = 2m. What is the ratio of the trucks tray top to that of the utility's, in simplest terms?



5m



2m



# Practice Aptitude Quiz

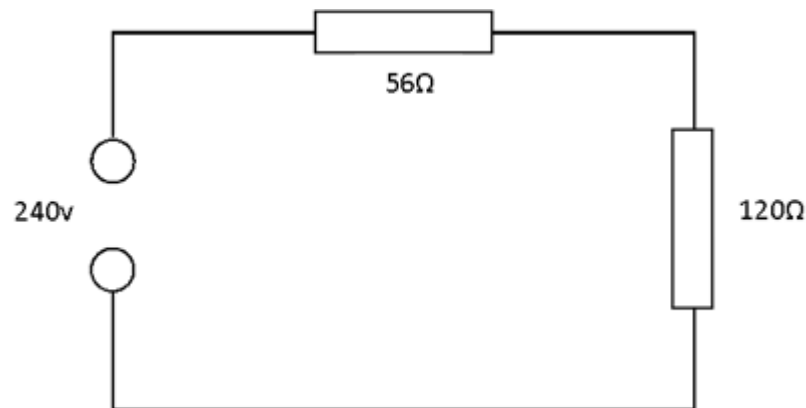
44. An angle grinder cuts through 0.5cm of steel in 1 minute. How long will it take to make a cut 3.5 cm deep?
45. A car travels at a constant speed. If the car takes 30 minutes to travel 50 kilometres, how many kilometres will it travel in 1 hour?
46. A car uses 12 litres of petrol per 100 kilometres. If the tank holds 60 litres, how far will it travel on a full tank?
47. The capacity (volume) of a 6-cylinder car is 2.4 litres. What is the volume of each cylinder?
48. A car's engine crankshaft revolves 2,400 times each minute. How many seconds does it take to revolve 1,200 times?
49. Ali's car uses 10 litres of petrol every 300 kilometres. What is the rate of petrol consumption in km per litre for Ali's car?
50. An air conditioning unit circulates 320 cubic metres of air per minute. How many cubic metres of air is circulated in an hour?

# Practice Aptitude Quiz

51. A mechanic cut two 14 cm long pieces of rubber tubing from a tube 50 cm long. How much of the original rubber was left?

52. Two gears have 12 and 15 teeth respectively. What is the simplified ratio of the number of teeth on the first gear to the number of teeth on the second gear?

53. A simple series circuit has two resistors, one 56 ohms and the other is 120 ohms and is connected to a supply voltage of 240 volts.



P = Power

I = Current

R = Resistance

V = Voltage

- a. Calculate the current flowing (in amps) in the circuit using the formula  $V = IR$ . Correct to 3 decimal places.
  
- b. Calculate the total power (in watts) dissipated using the formula  $P = I^2R$ . For 'I', use the answer you calculated in the previous question. Round your answer to 2 decimal places.

# Practice Aptitude Quiz

## ANSWERS

### Section 1: Language and Literacy

1. Alternator, Bonnet, Cam gear, Cam shaft, Cam timing belt, Piston, Rocker cover, Sump, Timing cover, Valve
2. Mechanics, Women, Branches, Children, Sheep
3. Dynamometer, Vacuum, Differential
4. files, solely, individual, whom, recipient, recipient, dissemination, communication, prohibited, unlawful
5. a. Maintenance b. schedules c. replacement d. worn e. attention.
6.
  - a. The airbag module; the ECU (Engine Control Unit) which controls the engine functions, the driver's door module; climate control module; cruise control module; the transmission controller which controls automatic transmission, and the ABS module controls the anti-lock brakes and may handle the traction-control and stability-control systems.
  - b.
    - The need for sophisticated engine controls to meet emissions and fuel-economy standards.
    - Advanced engine diagnostics and repair.
    - A reduction of the amount of wiring in cars.
    - New safety features.
    - New comfort and convenience features.
    - New entertainment and communication features.
  - c. The micro processor that is the most important is the ECU (Engine Control Unit). It controls engine functions like the spark timing and obtaining the correct fuel to air mixture to intake into the engine block. It can also manage the emissions and the fuel economy of the car.
7. a. An Automotive Apprenticeship  
b. Year 11  
c. Listening, communication and writing  
d. All of the above
8. a. Leather apron, Leather gloves, Welding mask  
b. Overalls, Gloves of appropriate weight  
c. Wear steel capped boots  
d. Respirator, Ear muffs or ear plugs
9. a. Face shield, Ear muffs or ear plugs, Gloves, Cap or hair net,  
b. Overalls, Gloves (heavy weight)  
c. Overalls, Gloves (light weight), Respirator, Safety glasses  
d. Welding mask, Leather gloves, Leather apron, Ear muffs or ear plugs  
e. Safety glasses, Respirator
10. a. Open stairwell b. Permanent railings, chain access, warning markers

# Practice Aptitude Quiz

## Section 2: General Knowledge

- a. sump    b. cylinder block    c. alternator    d. fuel injector    e. piston    f. carburettor  
g. rocker cover    h. spark plugs
- a. Open ended spanner    b. Vice grips    c. Needle nose pliers    d. Centre punch  
e. Phillips head screwdriver    f. Micrometer    g. Tin snips    h. Hacksaw
- a. bumper bar    b. windscreen    c. boot    d. wing mirror    e. door    f. skirt  
g. bonnet    h. wiper arm
- Volt, current, ohms, diode, resistor

## Section 3: Numeracy

- a. m    b. min    c. °C    d. kg    e. m<sup>2</sup>    f. km/hr  
g. ml    h. AUD
- a. 48.8cm    b. 177.4cm
- 82.3, 8.23, 0.823
- a. 25%    b. 16.37    c. 3/8    d. 2<sup>3</sup>/<sub>4</sub>    e. 5:4    f. 35°
- a. 8000m    b. 3500g
- a. 0.7    b. 2.85
- a. 8    b. 6
- a. 35.68    b. 30
- a. 240000    b. 2000
- a. \$31.68    b. 804.339
- a. 3,434    b. 13.719
- a. 68.7    b. 41.4    c. 369.6
- a. 0.345    b. 756    c. 281
- 932.1
- 2/4 or 1/2
- a. 3/4    b. 9/6 or 11/2 or 1 1/2    c. 3 3/8
- a. 7/12    b. 13/14
- a. 3/7    b. 26/10=13/5    c. 30/100=3/10
- a. 30°    b. 120°
- a. 58°    b. 20°    c. 50°
- 52m
- 25.12m
- 10m<sup>2</sup>
- 42km<sup>2</sup>
- 314cm<sup>2</sup>

# Practice Aptitude Quiz

26. 2260.8cm<sup>2</sup>
27. a. \$4.40 3.21
28. a. 20 b. 5
29. \$1008.00
30. a. \$1600 b. \$14400
31. \$432
32. 378
33. 13.16g
34. 54g
35. 25
36. \$33.60
37. a. \$770 b. \$231 c. \$1001
38. a. 0.08mm & 0.12mm b. 0.08mm & 0.015mm
39. 50km/hr
40. P = 3
41. F=PxA
42. 18 litres
43. 2.5:1
44. 7 minutes
45. 100 km
46. 500 km
47. 0.4 litres
48. 30 seconds
49. 30km/l
50. 19200m<sup>3</sup>
51. 22cm
52. 4:5
53. a. 1.364amps b. 327.45w