Government of Western Australia
School Curriculum and Standards Authority

AUTOMOTIVE ENGINEERING AND TECHNOLOGY

GENERAL COURSE

Externally set task

Sample 2016

Note: This Externally set task sample is based on the following content from Unit 3 of the General Year 12 syllabus.

Automotive mechanics

Principles

- scientific principles and the influence of these in modifying and selecting automotive technologies for improved performance.

Maintenance and repair

- maintenance, testing and repair/replacement of major components in motor vehicle systems; electrical system, cooling system, fuel and lubrication systems
- adjustment of bearings and removal and repair of motor vehicle components including wheels, body and mechanical parts
- use of flow charts and problem-solving skills to diagnose faults in conjunction with the use of specialised tools and equipment
- servicing, repair and maintenance requirements of various types of engines
- materials and parts required for optimising performance of various types of engines
- safety data information and workshop Occupational Safety and Health (OSH) regulations for both individuals and small groups.

Systems

- relationships between systems, subsystems and components during specific automotive operations

In future years, this information will be provided late in Term 3 of the year prior to the conduct of the Externally set task. This will enable teachers to tailor their teaching and learning program to ensure that the content is delivered prior to the students undertaking the task in Term 2 of Year 12.

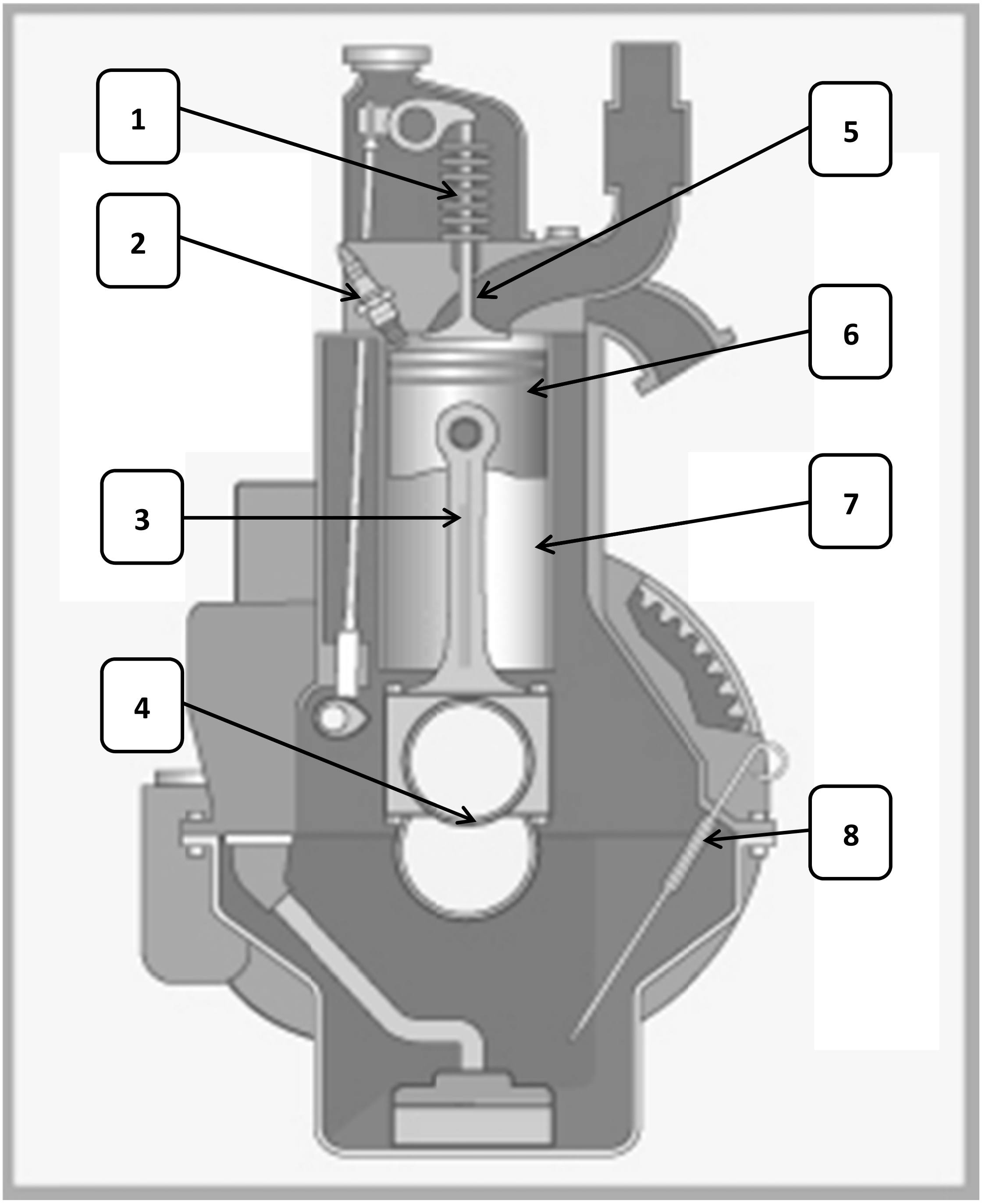
Automotive Engineering and Technology

Externally set task

Working time for the task:	60 minutes
Total marks:	50 marks
Weighting:	15% of the school mark

This task is comprised of two questions.

Use the image of a cut-through 6-cylinder overhead valve (OHV) petrol engine to complete the questions on the next page.



1. Use the image of a cut-through 6 cylinder OHV petrol engine on the previous page to name each of the numbered parts and explain **two (2)** operational functions of each part.

(24 marks)

Part one: ____

Function 1: ____

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Function 2: ____

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Part two: ____

Function 1: ____

____

Function 2: ____

____

Part three: ____

Function 1: ____

____

Function 2: ____

____

Part four: ____

Function 1: ____

____

Function 2: ____

____

Part five: ____

Function 1:____

____

Function 2:____

____

Part six: ____

Function 1:____

____

Function 2:____

____

Part seven: ____

Function 1:____

____

Function 2:____

____

Part eight: ____

Function 1:____

____

Function 2:____

____

2. A technician has just completed a wet and dry compression test on a 6-cylinder engine. The results are in the table below. The manufacturer's specified compression pressure for each cylinder is 900 kPa.

(26 marks)

	Cylinder 1	Cylinder 2	Cylinder 3	Cylinder 4	Cylinder 5	Cylinder 6
Dry Test	840 kPa	843 kPa	600 kPa	845 kPa	860 kPa	790 kPa
Wet Test	845 kPa	850 kPa	702 kPa	860 kPa	900 kPa	830 kPa

(a)(i) Using your workshop knowledge and skills, list and describe **five (5)** symptoms of worn engine parts that could be evident from the figures above. (10 marks)

Symptom 1: ____

Evidence: ____

____

____

Symptom 2: ____

Evidence: ____

____

____

Symptom 3: ____

Evidence: ____

____

____

Symptom 4: ____

Evidence: ____

____

____

Symptom 5: ______________________________

Evidence: ______________________________

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(ii) Describe the steps involved in preparing a compression test to diagnose the cause of one engine symptom. (6 marks)

Engine symptom: ______________________________

Compression test process

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(b) List in sequence **ten (10)** of the steps taken to repair a blown head gasket. (10 marks)

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