



NZQA accredited and registered provider

Batteries

PRACTICE PAPER ONLY

Test Paper One / Time allowed 90 mins

To be completed by the student

Student Name _____ **Date** __ / __ /2020

School/Provider _____

To be completed by the School Invigilator/Coordinator/Tutor

I confirm that this assessment was completed by the student named above as a closed book exercise under exam conditions

Invigilator Name _____

Invigilator Sign _____

Assessed By _____

Date __ / __ / 2020

**Assessor's
Stamp**

Assessors Note: Materials relate to unit standard 30572

SAMPLE ASSESSMENT INSTRUCTIONS

PLEASE MAKE SURE YOU READ AND SIGN THIS SECTION

ASSESSMENT INSTRUCTIONS

- Before starting this assessment you should have achieved a mark of at least 80% for your workbook.
- Use a black or blue ball point pen. (do not use pencil)
- Write your full name on the cover page.
- This is a closed book assessment, so you cannot bring any reference material in, or seek help from anyone else.
- You need to answer all the questions.
- Read the questions carefully, and give detailed answers when asked to.
- You must complete the assessment under exam conditions.
- To achieve the unit standard you must show competency for each outcome.

Complete the following by circling Yes or No as appropriate:

Are you ready to be assessed? **Yes No**

Have the assessment instructions these been explained to you? **Yes No**

Do you understand the assessment instructions? **Yes No**

Have you all the materials/resources that you need for this assessment? **Yes No**

Please sign to acknowledge that you have read these instructions and are ready to be assessed.

Student Signature: _____ **Date:** _____

You must complete the assessment instructions on Page 2 before starting this assessment!

OUTCOME ONE

Demonstrate knowledge of automotive batteries and their service requirements.

- 1. From the list provided, State the application and main characteristic/s of each battery.**

Starting battery:

Application:

Deep cycle batteries:

Application:

Calcium batteries:

Application:

Absorbed glass mat (AGM) batteries:

Application:

Gel batteries:

Application:

Lithium ion batteries:

Application:

Lithium iron phosphate batteries:

Application:

- 2. List the information needed when selecting a battery for correct vehicle starting operation or application.**

- 3. Where should batteries that are used and damaged be stored and how should they be disposed of?**

4. How many cells are there in a 12 volt battery?

5. Explain how the electrolyte temperature effects voltage charge rate.

6. What chemical reaction occurs to the positive plate lead sulphate during charging?

7. What chemical reaction occurs to the negative plate sponge lead during discharge?

8. What tool is used to measure battery electrolyte?

9. Explain the procedure to remove and replace a vehicle battery including the circuit connections

10. Provide the meanings to these battery terms:

Cold cranking amps

Service life

Sulphated

Final discharged voltage limit

Self-discharge

Capacity

11. Are there more positive or negative plates per battery cell?

12. What is the chemical make-up of electrolyte?

13. Explain the procedure to charge a battery used in marine equipment that is within a confined area.

14. List 4 battery faults or conditions that can lead to a battery failing?

- 1.

- 2.

- 3.

- 4.

OUTCOME TWO

Demonstrate knowledge of testing an automotive battery.

1. Describe the procedure for checking and testing a maintenance-free battery and list the equipment required

Equipment:

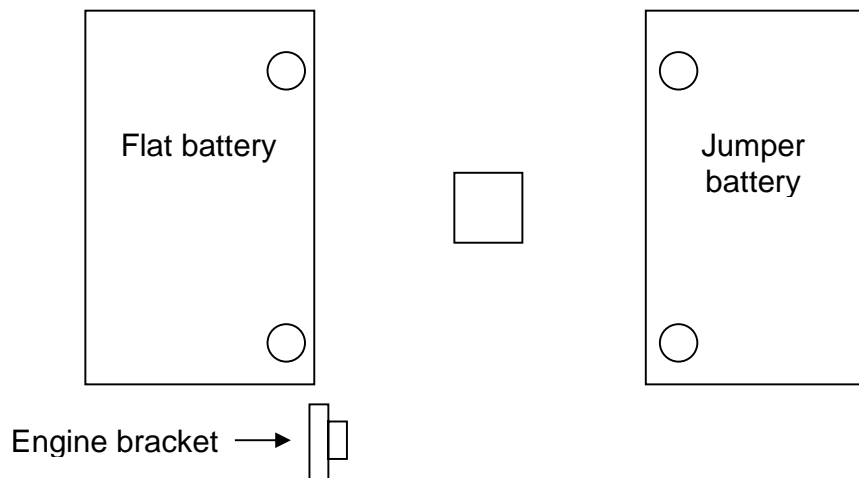
2. A battery is checked using a high-rate discharge tester. Identify the loaded pass voltage from the provided list.

6.8volts

4.5volts

9.6volts

3. Draw a diagram showing jumper cables connecting two batteries for jump starting. Number each cable in the correct connecting sequence. (Include positive and negative positions on the battery, positive and negative cable connections and the position of an anti-spike device).



4. Complete the following sentences using the provided words.
(Engine, Battery, First, Negative, Last, Chassis, Earth, Cables, Positive, Terminal, Earth, Bolted)

Remove the _____ cable from the _____ first. Now remove the _____ cable, but make sure the _____ do not touch. (Remember, the negative is the _____ and _____ cable you will work with assuming that the negative is the _____. You can tell if the negative _____ is _____ by seeing if the cable is _____ to the car _____ or _____.

5. Outline the procedures for slow charging a battery

6. Outline the procedure to Jump start a vehicle using a portable jumper pack.

7. What is the function of each listed component?

Separator relay

Battery switch

Split charging

Blocking diodes

8. Outline the procedure to replace a vehicle battery

9. A battery is tested using a hydrometer. Circle the readings from the float scale that would best indicate a charged battery.

1.155 1.260 1.225 1.120

10. What is the maximum time allowed to load a battery using a high rate discharger tester?

11. During a high rate discharge test one or more of the cell bubbles and gives off a rotten egg smell, what does this indicate?



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