Government of Western Australia
North Metropolitan TAFE

Portfolio Assessment tool

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

Portfolio Assessment Solve problems in single and three phase low voltage electrical apparatus and circuits G033A Heating			
Lecturer Name			
Student Name			
Student ID Number			
Telephone Contact Number		**Email:**	

By completing and submitting this signed form to my lecturer, I am stating that:

a. The attached submission is completely my own work
b. I understand a copy of my assessment will be kept by the NMTAFE for their records
c. I understand my assessment may be selected for use in the NMTAFE's validation and audit process to ensure student assessment meets requirements

Student Signature		**Date**	
Due Date		**Time**	

Assessment Result Satisfactory / Not Yet Satisfactory *(please circle)* **Date:**_____

In order to satisfy requirements for this assessment, you need to complete the following:

Feedback to student:

Assessor please note: Where verbal clarification has been sought from a student to gather additional assessment evidence from an assessment item, question/s and response/s must be recorded, signed, and dated by the assessor, against the relevant assessment item/s.

Student Feedback

Feedback from student:

Lecturer Signature: _____ **Student Signature:** _____

Government of Western Australia
North Metropolitan TAFE

Portfolio Assessment tool

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

Assessment type (☑):

☐ Questioning (Oral/Written)
☐ Practical Demonstration
☐ 3rd Party Report
☑ Other – Project/Portfolio (*please specify)*

Assessment Resources:

Students will need access to:

Writing Instruments
Three Heat Switch panel

Assessment Instructions:

Assessor instructions

1. Student to answer all portfolio question by due date.

2. The assessor is to sign and record the students result as ***satisfactory*** or ***not yet satisfactory*** at the end of the assessment.

Student instructions

1. *Complete all portfolio questions by the due date given to you by your lecturer.*

2. ***Failure to submit by due date will result in a re-enrol for this unit.***

Portfolio Assessment tool

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

1. In the spaces provided below, sketch a **full circuit diagram** (including the elements) demonstrating how a “Three-Heat” switch achieves each of its 3 different heat settings.

Low

Medium

High

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

2. Calculate the **3 different wattage outputs and combined resistance values** derived from a three heat switch controlling a single-phase 240 volt stove top grill that consists of two 1 kW elements. Please **show** working.

Low

_____ **Ω** _____ **W**

Medium

_____ **Ω** _____ **W**

High

_____ **Ω** _____ **W**

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

3. Explain how a simmer-stat controller works.

_____

_____

_____

_____

_____

_____

4. Draw a circuit diagram of a simmer-stat controlling a hot water urn

5. Is a simmer-stat suitable for use in controlling an oven?

YES NO (Circle correct answer)

Explain your answer.

_____

_____

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

6. Explain the principle of a “vapour (capillary) tube” type thermostat and list one application?

_____

_____

_____

_____

Application _____

7. What precautions are necessary when handling and installing “vapour” controlled thermostats?

_____

_____

_____

8. Give two applications of where a “fixed temperature” thermostat is an essential component which ensures that the device operates safety and as intended.

_____

_____

9. State the dangerous situation that may arise if the “Over-temperature” thermostat on a Hot Water System was to be bridged out.

_____

_____

_____

_____

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

10. If a “Simmer-stat” should become faulty; in which state/s are they most likely to fail?

ON OFF HALF ON/ HALF OFF (Circle the correct answer/s)

There is a special requirement in the “Wiring Rules” to reduce the danger posed by a failed Simmer-stat, what is this requirement?

_____

_____

_____

Provide the AS/NZS3000 clause number _____

11. Define ‘HEAT’.

_____

_____

12. Define ‘TEMPERATURE’.

_____

_____

Qualification national code and title	**UEE30811 - Certificate III in Electrotechnology: Electrician**
Unit/s national code/s and title/s	**UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits - Heating**

13. State the three different types of ‘HEAT ENERGY TRANSFER’.

_____

_____

_____

14. Describe three different types of ‘HEATING CONTROLLERS’.

_____

_____

_____

15. State two different methods of ‘MANUAL HEATING CONTROL’

_____

_____

16. List three different methods of ‘AUTOMATIC HEATING CONTROL’ systems.

_____

_____

_____

END OF ASSESSMENT