ELECTRONICS FOUNDATION Level 2

Common Assessment Task

Work Requirements:

Practical Work

Assessment Type:

Practical performance – short response

Criteria being assessed:

- Criterion 2 – 1, 2, 3 & 4
- Criterion 7 – all elements

Suggested conditions:

- This task should take learners 1.5 hours total.
- This task requires an individual response by each learner.

Task Description:

Measuring Resistance

In this task, you will measure resistance using different sequences of resistors and record the results in a table.

To do this, you will:

- use the resistor colour code to determine the value of given resistors
- use a multimeter to measure the resistance of given resistors.

What you need to do:

You will measure resistance using different sequences of resistors and record the results in the table.

1. Use the set of resistors supplied to you.

2. Read the **resistor colour code** from the resistor (For example: red red brown gold), and write it in the 2nd column (**Resistor colour code combination)** of the table below.

3. Now convert the colour codes to the **full resistance value** (eg. 220 ohm) and **tolerance** (eg. 5%) of each resistor and write this in the correct columns.

Trial	Resistor colour code combination	Value of resistance (ohm)	Marked Tolerance (%)	Multimeter reading	%error
eg.	red red brown gold	220	5%		
1					
2					
3					
4					
5					

4. Get a multimeter and set the switch to one of the resistance ranges (either start at 200 ohm, or preferably the correct range for that resistor).

5. Place the multimeter probes across the first resistor and read its value on the multimeter scale. If you can't get a satisfactory reading, switch to another scale and repeat.

6. Write the measured value in the 5th column above. Repeat the above steps for **each** of the resistors in the set.

7. Now calculate the %**error** for each of the resistors, using this formula:

   %error = (colour code value - multimeter reading) x 100 = _____ %
                     colour code value

   Fill in your calculations in the last column above, showing how accurately each resistor is marked.

8. A resistor has bands of brown, black, orange and gold. Calculate:
   (a) the nominal value of the tolerance, in ohms. (Hint: What is 5% of 10KΩ?) _____
   (b)   the resistor's upper and lower limit, in ohms:
   Lower R: _____   Upper R: _____

9. Using the multimeter supplied, was it possible to read the values of all the resistors fully accurately on the multimeter scale?   Explain your answer.

Teacher use only - What needs to be submitted for assessment?

Learners respond to the questions in a separate document, clearly identifying each question number they are responding to.