A Level Physics Transition Baseline Assessment

40 Marks – 40 Minutes

A single piece of graph paper is required for the completion of the assessment.

You may use a calculator.

Question Number	Topic	Score
1	Symbols and Prefixes	/3
2	Standard Form	/4
3	Re-arranging Equations	/3
4	Atomic Structure	/3
5	Recording Data	/3
6	Graphing	/4
7	Forces and Motion	/10
8	Electrical Circuits	/5
9	Waves	/5
	Total	/40

Q1 Complete the following table:

Unit prefix	Meaning
k (kilo)	x 1000
	X 0.000001
M (mega)	
N (nano)	

[3]

Q2

a) Write the following numbers into standard form.

   i.   0.012

   ii.   120000

   iii.   0.00000012

[3]

b) Complete the following calculations and right your answers to an appropriate number of significant figures.

   i.   2.1 X 0.15

   ii.   0.345 ÷ 0.114

[4]

Q3 Re-arrange the following equations to make R the subject of the equation.

a) $Q = WERTY$

b) $Q^2 = WR^2$

c) $Q = W - RT^2$

[3]

Q4 Name the 3 particles (from GCSE) that make up an atom.

……… **[1]**

    a)   Which one of the above particles is not found in the nucleus of an atom?

……… **[1]**

    b)   Which of the above particles will be found in varying quantities in the nuclei of isotopes of the same element?

……… **[1]**

Q5

    a)   Complete the following table

Voltage (__)	_____ (A)		
	Repeat 1	Repeat 2	Average
2	0.23	0.26	0.25
4	0.46	0.53	
6	0.69	0.78	0.74
8	0.92	1.04	0.98
10	1.15	1.30	1.23

[3]

Q6

a) Use your piece of graph paper to plot a graph of Current (x-axis) against Voltage (y-axis) drawing a line of best fit through your data points.

[4]

b) Find the gradient of your line of best fit

[3]

Q7 The graph below shows the journey of a skydiver after they have left the plane.

a) Explain the shape of the graph commenting on how and why the forces have changed.

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[6]

b) Calculate the distance travelled whilst at the second terminal velocity.

[2]

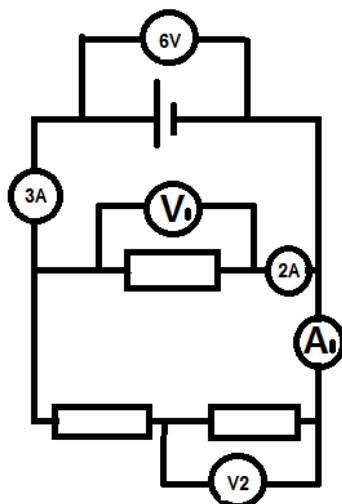c) Calculate the **average** acceleration in the first 20 seconds.

[2]

Q8

a) Draw a circuit diagram to show how the resistance of a filament bulb could be measured using an ammeter and a voltmeter.

[2]

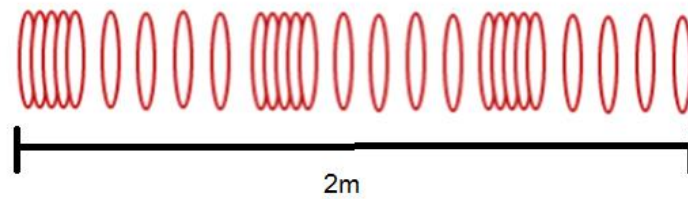b) Look at the circuit diagram below. All of the resistors are identical.

Write the missing values of current and potential difference:

     i.   V1 =
    ii.   V2 =
   iii.   A1 =

[3]

5

Q9 The diagram below shows a diagram of 3 complete longitudinal wave oscillations on a slinky:

2m

a) State the wavelength of the wave shown

…… **[1]**

b) Label a complete wavelength on the diagram above with the correct symbol used for wavelength in GCSE and A Level Physics

[1]

c) If the above wave had a frequency of 5Hz how long would it take an individual hoop to complete 1 full oscillation?

[1]

d) Calculate the speed of the wave

$$wavespeed = frequency \times wavelength$$

Wave speed = _____ Unit _____[2]