****

**TASK 2**

NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ATAR CHEMISTRY UNITS 1 & 2 SCIENCE INQUIRY 1 QUIZ**

TOTAL 20 marks

1. Use examples to explain systematic and random errors. (2 marks)

Random errors – result in values that are as likely to be above the true value as below it ( 0 .5) Appropriate example - ( 0 .5)

Systematic errors – result in valse that are more likely to be either above or below the true value( 0 .5) Appropriate example - ( 0 .5)

2 State the number of significant figures for each of the following: (2 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **No. of Sig Figs** | **Number** | **No. of Sig Figs** |
| 0.00500010 | 6 | 0.00008550 | 4 |
| 2.1 × 106 | 2 | 6.0005 | 5 |

3 Perform the following calculations and express your answer with the correct number of significant figures. (4 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Operation** | **Answer** | **Operation** | **Answer** |
| 4.13 × 6.2 | 26 (2 sig figs) | 1.419934 ÷ 62 | 0.023 (2 sig figs) |
| 8.9921 - 2.63 | 6.36 (2 dp) | 1897 + 0.2119 | 1897 (0 dp) |

4 Express the following numbers using scientific notation (2 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Operation** | **Answer** | **Operation** | **Answer** |
| 1300000 | 1.3 x 106 | 2100 × 102 | 2.100 x 105 |
| 0.000531 | 5.31 x 10-4 | 50 × 10-4 | 5.0 x 10-3 |

5 Perform the following calculations and express your answer with the correct number of significant figures. (4 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Operation** | **Answer** | **Operation** | **Answer** |
| 7.392 x 0.392 | 2.90 (3 sig figs) |  | 40 (1 sig fig) |
|  | 32.3 (3 sig figs) |  | 101000 (3 sig figs) |

6 The following diagrams represent experimental data that contains systematic and random errors. Write the letter for the diagram that best fits each of the descriptions and give an example of a situation that could produce similar results.

(6 marks)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Example** |  |  | **Example** |
| High systematic, low random | B |  | Low systematic, High random | C |  |
| Low systematic, low random | A |  | High systematic, high random | D |  |

