**“RESOLVING FORCES (STAWA 1.1) INTO COMPONENTS MARKING KEY”**

**31 Marks**

1. **Data table:**
   * **Clear table of results showing following data: (4 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Trial 1** | **Trial 2** | **Trial 3** |
| **Angle between string and boom (Ө) ✓** |  |  |  |
| **Tension T (N) ✓** |  |  |  |
| **Weight W (N) ✓** |  |  |  |
| **Thrust P (N) ✓** |  |  |  |

**Data in results table shows consistent use of appropriate significant figures or precision (2 Marks)**

1. **Processing of results:**
2. **Clear table of processed results for 3 trials**

**Correct calculation of Tv and TH especially check difference between Tv and W and difference between TH and P in the table. (4 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Trial 1** | **Trial 2** | **Trial 3** |
| **Vertical component of tension (Tv =T sin Ө) ✓** |  |  |  |
| **Horizontal component of tension (TH =T cos Ө) ✓** |  |  |  |
| **Difference between Tv and W ✓** |  |  |  |
| **Difference between TH and P ✓** |  |  |  |

**Data in results table shows consistent use of significant figures or precision (1 mark) Appropriate SF or precision (1 mark)**

**2.**

**Reaction Force (P)**

**Tension (T)**

**Tv**

**TH**

**Weight (W)**

**Directions on vectors**

**(2 Marks)**

**Vectors labelled (2 Marks)**

**Vectors to scale (2 marks)**

**Components indicated**

**(2 Marks)**

**Conclusion (Question 1.) 2 marks**

* **Vector can be broken into perp components ✓**
* **Components of a system in equilibrium should balance ✓**

**Questions**

1. **Tension Thrust 2 marks**
2. **Yes. Beam mass is small compared to weight of masses added. ✓**

**Can calibrate Tension balance with beam in place ✓ 2 marks**

1. **Major sources of error measuring Ө ✓, ensuring beam and thrust is measured horizontally. ✓ 2 marks**
2. **Correct calculations ✓✓**

**Explanation ✓ 3 marks**