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| Country | |  | |
|  | Student 1 | Student 2 | Student 3 |
| Name |  |  |  |
| Code |  |  |  |
| Signature |  |  |  |

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| **Experiment I. Determination of the Densities of Fruit Juices** | | | | | | | | | | |
| Questions  (Points) | | Data and Answers | | | | | | | | |
| I-1  (6.0) | I-1-1  (1.25) |  | | *d0* | *d1* | | *d2* | *d3* | | *d4* |
| Masses (g) | |  |  | |  |  | |  |
| Lengths of spring (cm) | |  |  | |  |  | |  |
| I-1-2  (2.5) |  | | | | | | | | |
| I-1-3  (1.25) | Slope | cm/g | | | Intercept | | | cm | |

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|  | Student 1 | Student 2 | Student 3 |
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| **Experiment I. Determination of the Densities of Fruit Juices (Cont’d)** | | | | |
| I-1  (6.0) | I-1-4  (1.0) | (Show your working) | | |
| Spring Constant | N/m | |
| I-2  (6.0) | I-2-1 (2.0) | Immersed weights | 50g + 50g | 50g + 50g + 50g |
| Volume of water  without weights in it (cm3) |  |  |
| Volume read from scale after immersing weights (cm3) |  |  |
| Volume difference (cm3)  (= Volume of liquid displaced) |  |  |

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|  | Student 1 | Student 2 | Student 3 |
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| **Experiment I. Determination of the Densities of Fruit Juices (Cont’d)** | | | | | | |
| Questions  (Points) | | Data and Answers | | | | |
| I-2  (6.0) | I-2-2  (2.0) | Juice | Apple | | Mandarin | |
| Lengths of spring with the weights outside juice (cm) |  | |  | |
| Immersed weights | 50g + 50g | 50g + 50g + 50g | 50g + 50g | 50g + 50g + 50g |
| Length of spring with the weights after immersing (cm) |  |  |  |  |
| Length difference (cm) |  |  |  |  |
| I-2-3  (2.0) | Buoyant force (N) |  |  |  |  |
| I-3  (2.0) | | Density (g/cm3) |  |  |  |  |
| Average density (g/cm3) |  | |  | |

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| Total points for experiment I |  |

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| **Experiment II. Determination of the Citric Acid Contents in Fruit Juices** | | | | | | | | | |
| Questions  (Points) | Data and Answers | | | | | | | | |
| II-1  (7.0) | Show your calculation of the average titer (for both juices) | | | | | | | | |
|  | Juices | | | | | | | |
| Mandarin | | | | Apple | | | |
| Trials | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Initial Readings (in ) |  |  |  |  |  |  |  |  |
| Final Readings (in ) |  |  |  |  |  |  |  |  |
| Volumes of NaOH solution consumed for titration |  |  |  |  |  |  |  |  |
| Average volume | |  | | Average volume | |  | |

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|  | Student 1 | Student 2 | Student 3 |
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| **Experiment II. Determination of the Citric Acid Contents in Fruit Juices (Cont’d)** | | | | | |
| Questions  (Points) | Data and Answers | | | | |
| II-2  (2.0) | (Show your working) | | | | |
| Moles of NaOH | Mandarin |  | Apple |  |

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|  | Student 1 | Student 2 | Student 3 |
| Name |  |  |  |
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| **Experiment II. Determination of the Citric Acid Contents in Fruit Juices (Cont’d)** | | | | | |
| Questions  (Points) | Data and Answers | | | | |
| II-3  (2.0) | (Show your working) | | | | |
| Moles of citric acid | Mandarin |  | Apple |  |
| Masses of citric acid | Mandarin |  | Apple |  |

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|  | Student 1 | Student 2 | Student 3 |
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| **Experiment II. Determination of the Citric Acid Contents in Fruit Juices (Cont’d)** | | | | | |
| Questions  (Points) | Data and Answers | | | | |
| II-4  (2.0) | (Show your working) | | | | |
| Percent concentration of citric acid | Mandarin | % | Apple | % |

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| Total points for experiment II |  |

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| Name |  |  |  |
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| **Experiment III. Anatomy and classification of fruits and seeds** | | |
| Question  (Points) | Data and Answers | |
| III-1  (1.0) | Location of the structure(s) originated from A |  |
| III-2  (2.5) | Location of the tissues originated from A, B, C and D |  |

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|  | Student 1 | Student 2 | Student 3 |
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| **Experiment III. Anatomy and classification of fruits and seeds (Cont’d)** | | | | | | | |
| Question  (Points) | Data and Answers | | | | | | |
| III-3-1  (2.0) |  | | fruits | | | | |
|  | |  | | |
| Fruits for ① and ② | |  | |  | | |
| III-3-2  (2.0) | Classification schemes for ‘c’ and ‘d’ | | characters | | | | |
| c | | d | | |
|  | |  | | |
| III-3-3  (4.0) | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Fruit**  **Classification** | **A**  **Acorn** | **B**  **Apple** | **C**  **Bean pod** | **D**  **Lychee** | **E**  **Lemon** | **F**  **Persi-mmon** | **G**  **Rice** | **H**  **Straw-berry** | | **Single seed fruit** |  |  |  |  |  |  |  |  | | **Many seeded fruit** |  |  |  |  |  |  |  |  | | **Aggregate fruit** |  |  |  |  |  |  |  |  | | **Multiple fruit** |  |  |  |  |  |  |  |  | | **True fruit** |  |  |  |  |  |  |  |  | | **Accessory fruit** |  |  |  |  |  |  |  |  | | **Fleshy fruit** |  |  |  |  |  |  |  |  | | **Dry fruit** |  |  |  |  |  |  |  |  | | | | | | | |
|  | | Student 1 | | Student 2 | | Student 3 |
| Name | |  | |  | |  |
| Code | |  | |  | |  |

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| III-3-4  (1.5) |  | |
| Number | Alphabet in Box 1 |
| ③ |  |
| ④ |  |
| ⑤ |  |
| ⑥ |  |

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| Total points for experiment III |  |