**2023 JC 2 Prelim H2 Physics (9749)**

**H2 Physics Review of Marking Form**

**Paper 2 / 3 / 4  (Circle the relevant papers to be reviewed)**

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**Class: 22S6D**

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 **Instructions:**

1. Review the worked solutions and marker's comments. Many of your mistakes have been addressed by them.
2. If you think the marker may have missed out on a marking point, fill out the table below.
3. You will need to justify why you think you deserve more credit. However, **only what you have written during the exam will be reviewed.** You do not even have the opportunity in the GCE to communicate to the markers, or see your marked script. **Marks will be deducted** instead if you justify with incorrect Physics or did not learn and repeat the mistakes already highlighted in the marker's comments.
4. Staple this form to the front of your exam papers.
5. **Submit your script to the college reception by the following deadlines. No late submissions will be entertained.**

| Paper | Release date | Appeal Deadline |
|-------|--------------|-----------------|
| 4 | Mon 25 Sep | Wed 27 Sep 0800 |
| 2 | Mon 02 Oct | Wed 04 Oct 0800 |
| 3 | Thu 05 Oct | Fri 06 Oct 0800 |

6. All marks would be updated on ISP by **06 Oct Fri 12 pm.**

I would like to **thank the reviewer** in advance of reading this review form as it is a long one. While admitting being driven by my desperate desire for just a few more marks to get a higher grade, I have absolutely no intention to "be smart" or to irritate, and tried my best to provide clear arguments for reviewing after perusal of the Suggested Solution and Marker's Comments. The gist of my points is **bolded and underlined**, though undecorated texts are also informative.

| Question & Part | Reason for Review | Current Mark | Marker's comments | Final Mark |
|-----------------|-------------------|--------------|-------------------|------------|
| **1(b)(i)** <br><br> **"Effect on GPE of satellite"** | The marker seems confused by candidate's insertion of "imaginary" by circling it out and commenting "imaginary forces cannot have a real effect". <br><br> The candidate believes the marker might have thought that the candidate meant "fictitious force" (which is not the case). **The wording "imaginary force" across literatures demonstrates no link to the physics term "fictitious force".** In fact, the candidate believes that regarding the "external force" as "imaginary" deserves not a full penalty, as the "external force" in **the definition of gravitational potential energy** that brings the small rest mass from infinity could be done by no real agent at all, **and is not realistic, thus being "imaginary".** <br><br> The candidate would like to suggest revoking the deduction by awarding a BOD. | 5 | | |

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|---|---|---|---|---|
| 2(a)(ii)<br><br>"Derive the expression for internal energy" | Being aware that Marker's Comments imply that "U = 3/2 k T" is an unacceptable answer, the candidate initiate a request for review upon the rationale that the question asked for deriving "an expression for the relationship between the internal energy of the ideal gas and the thermodynamic temperature T" **without specifying whether it should be microscopic or macroscopic** for the ideal gas.<br><br>The candidate even **put "(per particle)" near the answer**, signalling that it is a microscopic mean value with clarity. Since there's no wrong physics, a BOD for the entry would be highly appreciated :) | 6 | | |
| 5(b)(i)<br><br>"Variation of I vs. V" | The candidate parsed the question requirements as **"the variation / with / the potential difference V / of / the current I through the fixed resistor"**, since we only say "current through a resistor" but not "potential difference through a resistor" but "across".<br><br>Upon this, the candidate **interpreted "potential difference V" as the previously defined variable** in the first line of page 13 to be **the potential difference across the bulb**. Please consider awarding 1 mark given that the question is phrased ambiguously. | 4 | | |
| **5(b)(ii)**<br><br>**"Deter-mine the current"** | Given the explanation in the cell above for 5(b)(i), the candidate read off the **intersection** of the given I-V graph of the filament bulb and the graph he plotted, where **the current through both appliances equal (since they are connected in series) and are both 4.0A** and the potential difference across the bulb is 4V.<br><br>Since the candidate's answer "4.0A" is **exactly the same as the Suggested Solution** derived by **correct physics**, it is surprising no mark has been awarded. | 4 | | |
| 6(b)<br>"Determine the new mean P" | The candidate wrote explanations in the form of equations which could have been ignored by the marker. Please kindly consider any chance of awarding 1 mark. | 3 | | |
| 7(c)<br><br>"calculate the wave-length" | Generally, the wavelength $\lambda$<br>= hc/(E in Joules)<br>= hc/(e * E in eV)<br>= (**6.626**\*10^-34)(**2.998**\*10^8) /(**1.602**\*10^-19 * E in eV)<br>= **1240**/(E in eV)<br><br>The candidate gave the answer 1240/13.06 nm = 94.9 nm using those **more precise value of constants** and fully satisfied the command work "calculate". Please consider awarding full mark :) | 3 | | |

| 8(b)(1) "draw the forces" | 1 mark was deducted for allegedly incorrect mathematics by the marker.<br><br>Although the Marker's Comment mentioned about this, the candidate believes that the expression of $F_B$ = N + f **should not be a factor for mark deduction** as it is **outside of the question requirements according to the marking scheme.**<br><br>Additionally, when writing down "$F_B$ = N + f", the candidate kept in mind the forces are vectors and can be **summed vectorially**. The symbols are not carefully ornamented with an overhead arrow as the candidate didn't expect that expression would be evaluated out of mathematical concerns. | 12 | | |
|---|---|---|---|---|
| **8(c)(iv)**<br><br>**"Describe the subse-quent path"** | The candidate wrote "curve" instead of "parabola" keeping in mind that **part (iv) does not allow the assumption of negligible air resistance** like part (iii) does.<br><br>Please consider giving a BOD and awarding full mark since candidate used "derail and drop" and "curve" to describe the path more accurately since air resistance is not negligible in part (iv). | 12 | | |