PhysMock0903Comments

General for all: Be aware of number of significant figures, especially when asked to “estimate”. The number of significant figures in any answer should reflect the number of significant figures in the given data. In general 2 significant figures are enough. But there can be special cases depending on the problem stated, e.g. if “estimate” it can maybe be reasonable with only 1 s.f., and in connection with mass-defect maybe 6 s.f. are needed.

If no special case:
Significant digits should only be considered in the final answer. *e.g.* if the answer is 1.63:
2 *reject*
1.6 accept
1.63 accept
1.631 accept
1.6314 *reject*

Remember in paper 2 to indicate which B-questions you have chosen and similar in paper 3 which options you have chosen. There will be a “candidate box” on the cover sheet for this at the real Exam.

Be sure to fill in the Paper 1 MCQ form correct, read the instructions carefully.

P2: At the real exam
SL must in the B section select one question from a choice of three.
HL must in the B section select two questions from a choice of four.
One B question is labeled B1 or B2 etc. You are not allowed to hand in parts from different B questions.

P3: At the real Exam you will get questions in all possible options and must choose two.
I reccommend strongly that you choose the options we have worked with:
HL: E, Astrophysics and H, Relativity
SL: A, Sight and wave phenomena and B, Quantum physics and nuclear physics.

HL2:

The distribution of marks in mock are A : B = 40 : 60. In real Exam it is A : B = 50 : 50.

A5 d: The point is that you compare RT or similar thing. 3 examples must be considered at least. The final answer is in my opinion open, official answer is that the suggestion is incorrect, but if you exclude the first two data-points the suggestion seems OK, so answer will depend on your discussion.

B1 part 2 b ii: Value of T in official answer wrong, but final answer of f correct.

B2 part 1 a: Observe and discuss with students. I do not quite agree with official requirements of answer.

B3 part 1 e: Official answer assumes angle to be small, but it is 39 degrees, then using tan and sin resulting in lambda = 2.5 cm.

HL3:

E1 d iv: Arguments versus calculations? Official answer not clear on that. I accept any full argument including arguments based on calculation.

H1 b iii: Official argument can seem doubtful, the calculation looks “semi-classical”. But it is actually correct because calculation is done totally in only one IS.
Be aware of that you cannot apply time-dilation here, as the two space-time-events do not occur at the same spacepoint in any of the systems (Earth-system or spaceship system).
If you apply the full Lorentz-transformations you get the same result.

SL2:

A1 d: See remark to HL2 A5 d.

B2 part 1 a: Se remark to HL2 B2 part 1 a.

B2 part 2 a iii: 9.6 cm x 4 m/cm = 38.4 m (official answer 9.4 cm resulting in 37.6 m).
b i: I get 2.4 x 4/0.8 = 12 m/s.

SL3:

A1 b i: Official answer require photopic curve(s) to have lower maximum (lower than 100). Kirk p.118 is not showing that. But Kirk is stating “normalized absorbance” and in the problem they state”percentage of the maximum”, so official answer by curve is wrong, all maxima should be at 100. But it is correct that rods are more sensitive than cones in dim light.

A1 c: This must be included in the answer: That there are three types of cones. Color-blindness because of lacking (or defect in absorbtion) one (or more?) types of cones.

A3 c: Tell that light from reflections are polarized horizontally (electric fields parallel with horizon), and that the sunglasses has a transmission axis at 90 degrees to the plane of reflection (not to the plane of the reflected light as stated in the official answer), so that the reflected light intensity is cancelled/reduced.

B2 a: Either diffraction (if diff. grating) or refraction (if prism) must be mentioned.

B2 c ii: Official answer about labeling the diagram: unit of wavelength: nm.