British Astronomy and Astrophysics Olympiad 2020-21

Astronomy & Astrophysics Challenge Paper

September - December 2020

Instructions

Time: 1 hour (30 marks).

Questions: Answer all questions in Sections A and B, but only one question in Section C.

Marks: Marks allocated for each question are shown in brackets on the right. Working must be shown in order to get full credit, and you may find it useful to write down numerical values of any intermediate steps.

Solutions: Answers and calculations are to be written on loose paper or in examination booklets. Students should ensure their name and school is clearly written on all answer sheets and pages are numbered. A standard formula booklet with standard physical constants should be supplied.

Eligibility: All sixth form students (or younger) are eligible to sit any BAAO paper.

Further Information about the British Astronomy and Astrophysics Olympiad

This is the first paper of the British Astronomy and Astrophysics Olympiad in the 2020-2021 academic year. To progress to the next stage of the BAAO, you must take the BPhO Round 1 in November 2020, which is a general physics problem paper. Those achieving at least a Gold will be invited to take the BAAO Competition paper on Monday 25th January 2021.

To be awarded the highest grade (Distinction) in this paper, it should be sat under test conditions and marked papers achieving 60% or above should be sent in to the BPhO Office in Oxford by Friday 23rd October 2020. All papers, including papers sat after that date, or below that mark (i.e. Merit or Participation), should have their results recorded using the online form by Friday 4th December 2020.

To solve some of the questions, you will need to write equations, draw diagrams and, in general, show your working. You are also encouraged to look at the clear sky and identify the brightest stars, a few days before sitting the paper.

This paper has more than an hour's worth of questions. You are encouraged to have a go at as many as you can and to follow up on those that you do not complete in the time allocated.