

**Theory Instructions**

- You are given an envelope marked **B**. Please verify the Contestant Code printed on it. Inside you will find:
  1. This Instruction Sheet and/or  
This Instruction Sheet in your native language (if applicable)
  2. Data Sheet and/or  
Data Sheet in your native language (if applicable)
  3. A set of Working Sheets
  4. One envelope marked **S** (please verify the Contestant Code marked on it).
- **You are allowed to open the envelope **S** only when the whistle is blown to mark the start of the examination.**
- Inside the envelope **S** you will find the following:
  1. Question Paper and/or  
Question Paper in your native language (if applicable)
  2. A set of Summary Answersheets.
- Total duration of this examination is 5 hours.
- This examination consists of the following questions:

|             |               |                           |
|-------------|---------------|---------------------------|
| T01 and T02 | 10 marks each | $2 \times 10 = 20$ marks  |
| T03 and T04 | 15 marks each | $2 \times 15 = 30$ marks  |
| T05 – T08   | 20 marks each | $4 \times 20 = 80$ marks  |
| T09 and T10 | 35 marks each | $2 \times 35 = 70$ marks  |
| T11 and T12 | 50 marks each | $2 \times 50 = 100$ marks |
|             | <b>Total:</b> | 300 marks                 |

- **Writing your answers:**
  1. Summary Answersheet:
    - For each question a separate Summary Answersheet has been provided. Write your contestant code on each page of the Summary Answersheet.
    - Final answer(s) for each question / each part of a question must be written in the corresponding box in the Summary Answersheet.
  2. Working Sheets:
    - Your detailed work must be shown on the Working Sheet.
    - Write your Contestant Code on both sides of each Working Sheet.
    - Start a new question on a fresh Working Sheet. Write the question number in the box provided at the top.
    - Both sides of the Working Sheet should be used. Write only inside the boxed area.
    - For rough work that you do not want to be evaluated, clearly strike that part out.

- For each question write the page number in the box provided at the top of the Working Sheet, starting with 1 (each sheet has 2 pages). For example, if you use only 1 Working Sheet for T01, the question number and page number should be “T01, 1” and “T01, 2” on the FRONT and BACK of that Working Sheet, respectively. Next, if you use 2 Working Sheets for T02, the question number and page number should be “T02, 1” and “T02, 2” for the first Working Sheet, and “T02, 3” and “T02, 4” on the second Working Sheet.
  - You may ask for extra Working Sheets, if required.
  - **Note that failure to mark the Working Sheets, as instructed above, may result in your answers not being evaluated.**
- **At the end of the examination:**
  - Check that you have correctly written your Contestant Code and page numbers on all used sheets.
  - Arrange your sheets in the following way:  
Summary Answersheet of each question (starting with T01) followed by Working Sheet(s) used for that question.
  - Similarly stack the Summary Answersheet and Working Sheet(s) used for each question, in sequence.
  - Place the bunch of all your used sheets arranged in the above manner inside the smaller envelope **[S]**. All Summary Answersheets must be placed inside the envelope **[S]** irrespective of whether you have used them or not.
  - **Only the contents of the smaller envelope **[S]** will be evaluated. Any sheet that is not placed inside this envelope will not be evaluated.**
  - Place the smaller envelope **[S]** inside the bigger envelope **[B]**.
  - All other sheets, namely, Instruction Sheet(s), Question Paper(s), Data Sheet(s) and unused Working Sheet(s) should be placed directly inside the bigger envelope **[B]**.
  - Tie the thread seal on the envelope **[B]**.
  - Hand over the envelope **[B]** to the examiner. Make sure that no sheet is left on the table, except the green and the red card.
- **General Instructions:**
  - If you need a visit to the toilet during the examination, please raise your hand holding the green card kept on your table. You will be escorted by a volunteer.
  - If you need any other help during the examination, please raise your hand holding the red card kept on your table.
  - Use only black or blue pen for writing. For drawing, you may use a pencil.
  - Some marks may be deducted if the final answer is given without detailed solution.
  - Some marks may be deducted if the final answers have improper number of significant digits, no units or wrong units.
  - The necessary values of fundamental and astronomical constants should be taken from the Data Sheet provided to you.