

# **PROBLEM SOLVING**

## **Data**

Whatever is “given” in the problem (10% of total marks)

## **Objective**

Whatever is “to find” (“to draw”, “to prove”) in the problem — once the stated goal is accomplished write QEI (QEF, QED)\* (10%)

## **Solvability**

Whether the problem is over determined, critically determined or under determined (10%)

## **Strategy to Solve the Problem**

The physical law or the mathematical equation applied to solve + the assumptions/limitations of the model used [mention of alternate methods available, the most efficient and the most effective method to reach a solution] (15%)

## **Setting up of the Problem**

Coördinate axes, diagrams, conversions in SI [include a table of conversion factors used, symbols/terms used] (15%)

## **Solution of the Problem**

Solution using mathematics, physics or logic [solution to be in two columns, the left-hand column containing steps of the solution and the right-hand column their justifications] (30%)

## **Result(s)**

Should be quoted to proper significant figures, solely in the language of data and objective, without referring anything introduced in setting up of problem (10%)

## **Total 100%**

*Source: From Mathematics to Technology — A Bridge through Physics and Engineering*  
<https://www.ngds-ku.org/Papers/C70.pdf>

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\***QEI:** Quod erat Inveniendum — which was to be found out (**QEF:** Quod erat Faciendum — which was to be done, **QED:** Quod erat Demonstrandum — which was to be demonstrated)

*Web address of this document:* <https://www.ngds-ku.org/Educ/problem.pdf>