

Solving Subjective Problems on Newton's Laws of Motion-Set II

This is in continuation to typical objective questions Set-I on Newton's Laws of Motion brought out in 8th Quarterly e-Bulletin on 1st July'18. This set covers Subjective Questions.

Newton's Laws of Motion is a matter of most common experience while performing any action or seeing an action being performed. Therefore, every action whether in equilibrium, uniform motion or acceleration will involve the Laws of Motion in one or the other way. Therefore, possibility of encountering a problem or situation never encountered earlier is infinite. In view of this while attempting solution of problems one must be ready to analyze it with pure ingenuity. Nevertheless, typical questions have been drawn to inculcate practice of handling problems with basic concepts and their application, and accordingly illustrations to the answers have been developed.

Objective questions are framed with some definite aims – a) to test quick reasoning ability of students, b) quick assessment of performance, and c) focus only on answer, without getting into as to how solution is evolved.

Accordingly, students taking examination have to evolve strategies to enhance their success probability. These strategies include firstly short cuts, rely upon mental calculations or solutions, based on approximate values obtained assess which of the solution is closest.

Aim of education is to enhance not only enhance reasoning abilities but grow it into ability to solve problem and implement the solution. This a more a matter of skill to evolve a solution which can be communicated to team which supports or maintain solution. Therefore stepwise meticulous solution without ambiguity is basic requirement. This is the reason all top level examinations use objective questions for screening, and for final selection involves test containing subjective questions.

In addition time available to solve subjective questions is relatively much more than the objective questions. This is where opportunity is availed by examiner to frame question which are not straight; questions are made intricate involving multiple concepts. Accordingly, this test is first in series of subjective questions. As journey into physics proceeds, more concepts shall be encountered and so also question sets that shall follow shall involve more-&-more integration of concepts. It is an academic pursuit to prepare students to handle real-life problems which are always interdisciplinary.

Answer to each question is supported with an illustration and not solution. Solution comprises of steps to reach answer to to given question or problem. While, illustration stretches beyond to analyze why steps are chosen in specific manner. Moreover, Gyan Vigyan Sarita is stretching out to stabilize Interactive Online Mentoring (IOM), these sets of questions, answers and illustration are aimed at to motivate students in self study.

The IOMS is a considered choice to connect students disconnected from passionate mentors extra efforts on developing illustrations is seen as an investment in the process of integration of students who are widely disconnected to avail necessary guidance to achieve proficiency and excellence.

This set has been developed on LaTeX, an environment completely different from industry-standard word-processors. Constraints of sailing in Latex and exploring it for continuance may require some more time for a pragmatic decision. Meanwhile, instead of making it a part of successive e-Bulletins following links may be used-

1. **Subjective Questions** on Newton's Laws of Motion, Part-II.
2. **Answers to Subjective Questions** on Newton's Laws of Motion, Part-II
3. **Illustration of Answers to Subjective Questions** on Newton's Laws of Motion, Part-II

Other guidelines to attempt these question, brought out in premise to previous sets, are applicable in this set also.