

# 平成 1 5 年度博士前期課程入学試験問題

機能機械学 専攻		受験番号	
試験科目	英語	2 枚中の 1	
<p>I 次の英語を日本語訳せよ.</p> <p>1. Many mechanical systems require modeling before their vibrations can be analyzed. After appropriate assumptions are made, including the number of degrees of freedom necessary, basic conservation laws are applied to derive governing differential equations. Appropriate mathematical methods are applied to solve the differential equations. Often the modeling results in a differential equation whose solution is well known, in which case the existing solution is used. If this is the case the solution must be studied and written in a form which can be used in analysis and design applications.(S. G. Kelly, Mechanical Vibrations, McGRAW-HILL より引用)</p> <p>2. The circuit element that stores energy in a magnetic field is an inductor (also called an inductance). With time-variable current, the energy is generally stored during some parts of the cycle and then returned to the source during others. When the inductance is removed from the source, the magnetic field will collapse, i.e., no energy is stored without a connected source. Coils found in electric motors, transformers, and similar devices can be expected to have inductances in their circuit models. Even a set of parallel conductors exhibits inductance that must be considered at most frequencies.(J. Edminister and M.Nahvi, Electric Circuit, McGRAW-HILL より引用)</p>			