

A3 (10 分)、专业英语 (Translate the following paragraph into Chinese)

1. Stepper motors provide precise positioning and ease of use, especially in low acceleration or static load applications. But the stepper motor's efficiency is low, much of the input energy must be dissipated as heat.
2. There are three factors in manipulating a lever: the fulcrum, the load, and the effort applied to the lever.
3. Screws are known for high friction, which is why they are used to hold things together.
4. Quality and accuracy are the major considerations in making machine parts.
5. How mating parts or assemblies fit together with component parts could be referred to as different fits: clearance fit, interference fit, or transition fit.

☐ **【模块 B】《液压与气压传动》与专业英语****B1 (20 分)、简答题**

- 1) 按泵的结构形式分类, 液压泵有哪些类型? 举例说明。
- 2) 按阀的操纵方式分类, 换向阀有哪几种类型? 举例说明。
- 3) 写出液压泵容积效率的表达式, 分析电机转速对容积效率的影响。
- 4) 如何调节执行元件的速度? 常用的调速方式有哪些?

B2 (20 分)、分析题

试写出进口节流调速回路的速度负载特性方程, 并分析负载对速度的影响。

B3 (10 分)、Translate the following paragraph into Chinese.

When a cylinder reaches the end of the stroke the piston and rod are decelerated to standstill. The kinetic energy resulting from this, must be absorbed by the end stop, the cylinder head or cylinder cap. Its capacity to absorb this energy depends on the elastic limit of the material. If the kinetic energy exceeds this limit the cylinder needs an external or internal end position cushioning. In this example we use an internal end position cushioning. When the piston with the cushioning bush travels into the bore in the cylinder cap the fluid must exhaust from the piston chamber by means of the adjustable throttle valve. This throttle valve regulates the degree of cushioning.

☐ **【模块 C】《现代设计方法》与专业英语****C1 (20 分)、概念题与简答题 (每题 5 分)**

- 1) 设计方法学及其研究对象?
- 2) 优化设计的数学模型?
- 3) 有限元分析?
- 4) 逆向工程?

C2 (20 分)、综合论述与分析题

叙述机械产品设计中的计算机辅助技术。

C3 (10 分)、专业英语 (Translate the following paragraph into Chinese)

Computer-aided engineering (CAE) generally relies on discretizing geometry; describing other part attributes and physical conditions; and then burning significant amounts of computation with finite-element, finite-difference, or other algorithms. CAE applications digitally test key static and dynamic characteristics of assemblies or individual product shapes.

Determining the best way to manufacture a physical product from geometry data has traditionally relied on defining key manufacturing characteristics like fillets, chamfers,