

武汉理工大学考试试卷 (A 卷)

2018 ~2019 学年第一学期 先进制造技术概论 课程 时间 120 分钟, 32 学时,

2 学分, 闭卷, 总分 100 分, 占总评成绩 70% 2019 年 1 月 6 日

题号	一	二	三	四	五	六	七	八	九	十	合计
满分	10	10	80								100
得分	2	6.5	32								60.5

得分 2

1 Fill in the Blank Question (0.5 mark for every blank, 10 marks)

1) A manufacturing system is a physical organizational system of components for the purpose of achieving a predetermined manufacturing purpose. It is an organic whole with specific functions, which consists of 制造过程 硬件, 软件 soft and 相关人员 relevant person process 0.5 0.5

2) According to the viewpoint of material forming theory, the forming method of mechanical parts can be divided into three types such as 冲压成形, 切削成形, 0.5

3) In order to adapt to different cutting loads, high speed cutting and high cutting accuracy, the machine bed should have: 恒温, 恒湿, 净化 and 防震.

4) The three stages of mechanical manufacturing process are 刚性自动化, 柔性自动化 and 综合自动化.

5) The flexible manufacturing system (FMS) mainly includes 加工系统 and 物流系统. 0.5

6) The composition structure of Manufacturing Resource Planning (MRPII) can be divided into three major systems, which are 工作流, 信息流 and 0.5

得分 6.5

2. Identification Question (名词解释) (2 marks for every item, 10 marks)

1) Manufacturing (General):

Manufacturing is consisted of marketing analyse, production design, control quality, managing process and selling, service(售后) 1

2) Value Engineering:

Value Engineering's core is analysing productions' function, it uses technological analyse ~~for~~ ways, in order to find a balance between functions and basis(成本). That is Value Engineering. 2

3) Green product:

In the life of Green product, it can reduce energy, ~~increase~~ increase resource used rate, be friendly with body or environment, and also it can protect users. 2

4) Flexible manufacturing system:

FMS ~~make~~ let product from less kinds and mass numbers turn to more kinds. 0.5

5) Concurrent Engineering (并行工程):

Product's design and produce are Concurrent and 一体化的, in order to reduce time, decrease basis(成本). 1

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1) Please describe and discuss the position and function of manufacturing industry in national economy.

② it's a main body which participates in marketing economy.

- ③ It's a basis which ~~base~~ support national high technology industry.
- ④ it ~~take in~~ 吸纳国民就业, increase export.

(content: ① product shape (产品造型), matching (装配), drawing process picture (绘制工程图))

technology and analyze the key technology of CAD.
(content: ① product shape (产品造型), matching (装配), drawing process picture (绘图工物图) and film design (文档设计))

- ② Product's 渲染和云态显示

Characteristic : ① Computer take part in designing. ② Computer supporting. ③ CAD is can't and unnecessary take part in all processes.

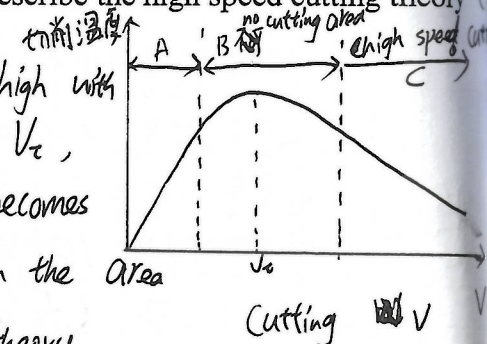
Key technology: ① product shape 建模 ② datas relevant design ③ 曲面造型设计技术
④ CAD and CAX system 集成技术 ⑤ 标准化技术

3) What are the main developments of advanced manufacturing technology?

Solution: ① increase manufacturing precise
② Cutting V and 进给 V increasing

- ③ use new material
- ④ autolize, number like equipments develop point
- ⑤ product 毛坯向少量发展
- ⑥ surface high 精洁.

Solution: in the beginning, cutting degree becomes high with cutting v . However, when v point at V_c , cutting degree becomes lower, although v becomes high. when we try to control V in the C of C , that is high speed cutting theory.



5) Please briefly describe the relationship and difference between MRPII and ERP.

Solution: MRP II's core is 公司 itself, 集合了所有内部资源的 ^{manage} system

ERP ~~is~~ not only contains all internal resource, but also content
客户需求 and 供应商 feedback. its core is 供应链.

6) Indicate one new technology of additive manufacturing (3D printing) and its application prospect.