**Caveats of Paper Writing in MCM & ICM**

1. 关于人称

使用第一人称复数**WE**

We propose the AHP model based on....

We draw the conclusion that.....

1. 关于时态——使用**简单时态**
2. 一般现在时。We solve the problem. We conduct a XXX model...
3. 一般过去时。描述这句话之前已经完成的工作，也用于描述前人的工作（文献综述）。We solved the equation in the previous section.

They showed that....

1. 一般将来时。描述之后将要进行的工作。We will deal with the problem in the following section.
2. 关于语态——**尽量使用主动语态**

The model produced a desirable result.

(do not say: A desirable result was produced by the model)

1. 关于句式
2. 句子不要太长，该断句就断句，论文最忌讳长难句
3. 先阐述观点和重点，再说背景原因等等引言

Incorrect For the application in automobile interiors, this paper studies the nesting

optimization problem in leather manufacturing. 5

Correct This paper studies the nesting optimization problem in leather manufacturing

for application in automobile interiors.

1. 先说x=什么什么，再说when什么什么

Incorrect When *U* is taken as the control parameter, the BDs for ∆=0.0, 0.001, 0.005

are shown in Fig. 8.

Correct Figure 8 shows the BDs for ∆=0.0, 0.001, and 0.005 when *U* is taken as the

control parameter.

1. 挑重点先说，XXX is constructed based on XXX，不要先说based on
2. Respectively的使用：

Incorrect The weights of the two experts are **respectively** 0.600 and 0.400.19

Correct The weights of the two experts are 0.600 and 0.400, **respectively**.

1. 不要过度使用in this paper/study

这两个词通常只用在摘要和结论中使用，用于强调文章内容。文中不适合用。

如果要用，也应该用in this study

可用in this research或this paper presents等等代替

1. 句首不要使用数字开头
2. 数字只用于表达科学研究的数据。

作为形容词的数字，例如three experiments，不要写成3 experiments

Incorrect All **3** studies concluded that the mean temperature should be **30°C**.

Correct All **three** studies concluded that the mean temperature should be **30°C**

但如果数字是计量单位的一部分，例如5-feet-long rod，可以用阿拉伯数字。

1. 句子里面不要夹杂公式，不等式要写成英文

Incorrect If the **power battery SOC > SOClo** and the driving torque belongs to the

middle load,…

Correct If the **power battery SOC is greater than SOClo** and the driving torque

belongs to the middle load,…

1. figure和table的缩写：Fig. 1, Tbl. 1

**但不要在句首使用缩写**

Incorrect Figure.6, Figure6, Fig.6, Tbl10

Correct Figure 6, Fig. 6, Tbl. 10

1. 变量名要用斜体表示
2. such as 和etc不要同时使用，such as mobile phone and printers. （不要在最后加etc. ）

Incorrect Studies of methodology and process of implementing remanufacturing mainly

focus on durable products **such as** automobile motors, printers, **and etc**. 11

Correct Studies of methodology and process of implementing remanufacturing mainly

focus on durable products **such as** automobile motors, **and** printers.

1. **永远不要在句子开头使用缩写、阿拉伯数字和数学表达！！！**

Incorrect：Fig. 8 ....

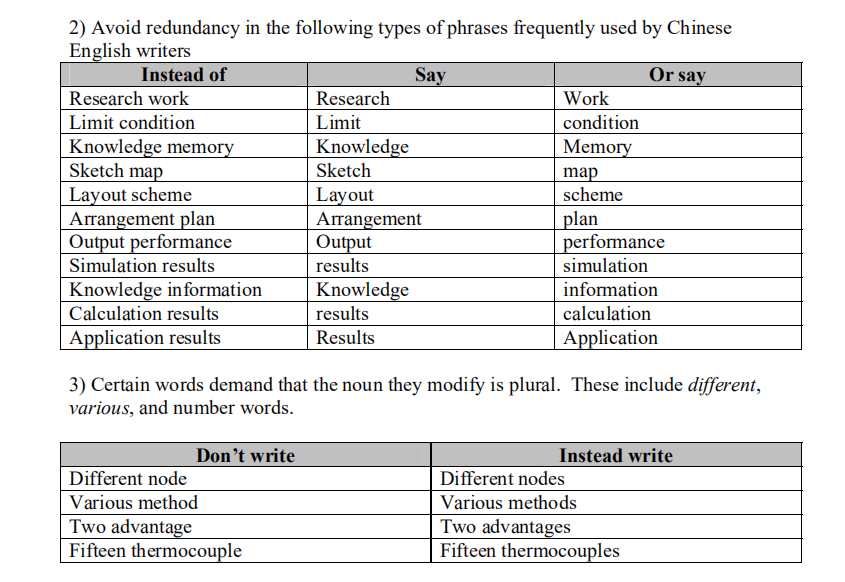
Correct: Figure eight.......

1. 关于词汇
2. a an the的问题。。。。
3. 使用具体含义的词汇：

good：using the previous equation, we can conclude that....

Bad: using the previous expression,.....

1. Compare to: 同类对象 Compare with：不同类对象
2. 可用的一些词汇：study & investigate, seek & explore, approach & propose, tackle & deal with & solve...
3. If 和 then 搭配
4. Assume和that搭配
5. 代词指代必须清楚
6. 不要使用冗余的词汇



1. Do not write ‘by this way’. Instead write ‘by doing this’, or ‘using this method’.
2. 不要用 ‘How to…’ 作为句子的开头。也不要这样说话。。。

No How to find the optimal parameter is the main objective.

Yes Determining how to find the optimal parameter is the main objective

1. Do write ‘the results are **shown in** Figure 2’. Do not write ‘the results are **showed as** Figure 2’.
2. Refrain from using the word obviously in a technical paper.

**不要在学术论文里面使用“显然”这个词。。。。Obviously，apparently，Clearly。。。。**

1. 不要过度使用that is to say, namely......这些口语化词汇，最好能在一句话里把意思表达清楚
2. 学术论文中，不要以too结尾。

Incorrect：this model fits well in China, too.

Correct: this model also fits well in China.

1. 单复数同形

• *literature* (when referring to research)

• *equipment,*

• *staff* (referring to a group of people)

• *faculty*

**【论文书写顺序建议】**[背景] 在确定建模思路前，可以先完成背景部分，这部分内容主要与题目相关，同时背景所提到的介绍最好是与团队建模过程中打算考虑的方面有关的。**篇幅大概半页**。  
[问题重述] 写问题重述**不能直接复制题目的问题。这部分的意思是用自己的话对问题重新介绍一遍。**就是说，当团队理解了题目要我们解决的问题，下面的建模方向已经确定（从哪里下手），问题重述就可以写了，简单粗暴一点就是直接改一下题目的表达就放上去（不建议）。这部分篇幅是**半页左右。**  
[插入说明] 摘要、工作介绍在建模后再做，或者建模工作已经做到一半，后面的思路已经非常明确时也可以写了。

**工作介绍部分可以考虑用流程框图来介绍建模及模型联系**。摘要是对整篇论文解题思路及工作的一个汇总，一般建议分点写，用first，then等作为每段的顺序说明。摘要中实则是对模型建立过程的一个简要概述。（作品经过几次评估的，第一次划论文等级时就是看摘要）  
[模型建立] **每一个大模型（基于题目问题）另起一章，里面再分小节介绍模型**。模型建立这部分是对团队解题想法+解题过程的结合，在写的时候要注意不要只是堆砌公式，**要一边说思路（从什么到什么，基于什么，我们认为等等）一边给思路结果（即公式）。**因为这是在跟别人介绍自己的模型，内容要清晰明了，显示逻辑性。模型与模型之间要有联系说明（一句话即可）。  
[模型求解] 这部分的内容在论文布局中较为灵活，可以在一个模型建立以后后面就给出模型求解，也可以建立了所有模型以后再统一进行求解。放在哪里最好与队友一起讨论，最终是为了让整篇论文看下来有条理，有安排，符合题目提问顺序等等。  
[模型分析] **这部分有些论文没有把它单独列为一章，因为实际上在进行模型求解时就可以对模型进行分析，也可以在每个大模型里都加一个模型分析小节**。一般来讲，当题目要求中有暗示了某个问题实际上是所有模型应用的综合，或者暗示某个因素对所有模型的影响时，可以另起一个部分。一般这个也可以比模型求解部分先写。  
[灵敏度分析] 这部分写作主要是抓住模型的某个点进行分析。  
[优缺点、未来工作、结论等] 这部分写作不难，**优缺点各三点左右**，未来工未来工作就是如何能建立更完整，应用性更强的模型（一般是当考虑建模过程中没有考虑的因素时，或者在建模过程中找不到资料的部分因素时）。结论就是对整个工作的总结。参考文献放十篇左右就好了，**建议尽量放英文参考文献上去**，虽然实际参考是中文文献，可以考虑把论文中提到的某种原则、原理、模型等的英文表达拿到谷歌学术那里搜索，找相关的就行。  
【论文检查】 检查关键信息是否正确（团队信息）  
【论文绘图部分】 对于不需要用代码实现的图线，关于思路表达图、线图都科研用PPT画（简单，易上手，图可以清晰导出）。

## 【短语】

具体作用方式：concrete functioning manner

决定..的价值：undermines the value of

为了简化问题：for a simplified consideration

完备的解决方案：a self-contained settlement

熟练掌握/精通：take the proficiency of

优先权：preemption，a prior appropriation

有争议的问题：an controversial  issue

擅长解决有争议问题：perform well on the considered problem

最重要的：of paramount important

anticipation, mitigation, and containment of pandemics

模拟真实：replicate the true dynamic

大规模随机模型：largescale stochastic models

计算低效地：computationally ineffcient

适当的描述粒度：appropriate descriptive granularity

分隔的模型：compartmental model

近似模型和启发式算法：approximations and heuristics

时间范围：time horizon

排名表：league tables

用于决策的不同指标：different metrics for decision

作用函数：production function

易处理的问题：yield a tractable problem

任意网络：arbitrary networks

权衡：tradeoff

利用、使用：utilized

稀疏的生成矩阵：sparse generator matrix

亮点：strengths、 merits

优缺点：merits and demerits

功大于过：One's merits outweigh one's short-comings

很好地：commendably; primely

区分：formulate构造，formula公式

分散控制：Decentralized control

大规模动态系统：large-scale dynamical systems

不同于：differs from

## 单词

情景：scene, scenario(复scenarios)

elaborate、present、propose、introduce、

轨迹：trajectories

操作：operated

改编、返工：reworking

操纵：manipulation

有利的：advantageous

坐标：coordinates

困境：dilemma

准随机：quasirandom

归纳为：induce, reduce

说明：illustrate

【常用表达】

**一、经典替换词**

　　1. individuals, characters, folks 替换 people , persons.

　　2. positive, favorable, rosy, promising, perfect, pleasurable, excellent, outstanding, superior 替换 good.

　　3. dreadful, unfavorable, poor, adverse, ill 替换 bad(如果bad做表语，可以有be less impressive替换。)

　　4. an army of, an ocean of, a sea of, a multitude of, a host of, if not most 替换 many.

　　5. a slice of, quiet a few 替换 some.

　　6. harbor the idea that, take the attitude that, hold the view that, it is widely shared that, it is universally acknowledged that 替换 think。

　　7. affair, business, matter 替换 thing.

　　8. shared 替换 common .

　　9. reap huge fruits 替换 get many benefits.

　　10. for my part ,from my own perspective 替换 in my opinion.

　　11. Increasing(ly), growing 替换 more and more(注意没有growingly这种形式。所以当修饰名词时用increasing/growing修饰形容词，副词用increasingly.)

　　12. little if anything或little or nothing 替换 hardly.

　　13. beneficial, rewarding 替换 helpful.

　　14. shopper, client, consumer, purchaser 替换 customer.

　　15. overwhelmingly, exceedingly, extremely, intensely 替换 very.

　　16. hardly necessary, hardly inevitable…替换 unnecessary, avoidable.

　　17. indispensable 替换 necessary.

　　18. sth appeals to sb, sth exerts a tremendous fascination on sb 替换sb take interest in / sb. be interested in.

　　19. capture one’s attention 替换 attract one’s attention.

　　20. facet, demension, sphere 替换 aspet.

　　21. be indicative of, be suggestive of, be fearful of 替换 indicate,suggest, fear.

　　22. give rise to, lead to, result in, trigger 替换 cause.

　　23. There are several reasons behind sth 替换…reasons for sth.

　　24. desire 替换 want.

　　25. pour attention into 替换 pay attention to.

　　26. bear in mind that 替换 remember.

　　27. enjoy, possess 替换 have(注意process是过程的意思)。

　　28. interaction 替换 communication.

　　29. frown on sth 替换 be against , disagree with sth .

　　30. as an example 替换 for example, for instance.

　　31. next to / virtually impossible 替换 nearly / almost impossible.

　　32. regarding / concerning 替换 about.

　　33. crucial /paramount 替换 important.

　　34. 第一(in the first place/the first and foremost);第二(there is one more point, I should touch on, that…);第三(the last but not the least).

　　35. assiduous 替换 hard-working.

　　36. arduous 替换 difficult.

　　37. underdeveloped / financially-challenged 替换poor(因为poor通常含有贬义).

　　38. demonstrate / manifest 替换 show.

　　39. invariably 替换 always.

　　40. perilous / hazardous替换 dangerous.

　　41. formidable 替换 difficult.

　　42. quintessential 替换 typical(举例时常用，例如：a quintessential example should be cited that=for example; for instance).

　　43. distinguished 替换 famous.

　　44. feasible 替换 possible.

　　45. consequently, accordingly替换 so.

　　46. 通常，由数据推断出一定的结论，用Results indicate, infer, suggest, imply that……

　　47. 最常见的引述别人观点的词汇

　　Much of the research in sexual selection in the last two decades has examined how a female’s preference that does not influence her immediate reproductive success can still evolve if it is genetically correlated with another character under direct selection.(不要每次写到研究时总用study，可以用些其它的词汇，比如examine，work。)

　　Two hypotheses for female preference evolution—runaway sexual selection and good genes selection—state that preferences evolve indirectly because they are genetically correlated with male traits that are under direct selection; that is, the preferences themselves are not under direct selection.(在引述别人的观点时，如果不能完全同意，使用state 比show更加中立些。)

　　Studies of receiver biases suggest that such analogies might not be broadly applicable.(suggest,又一种较为客观的引述观点的表达方法。)

　　Burley argued that the preference for red beaks is adaptive because it indicates male health, and this preference is then transferred to leg-band color.(argue,引用别人观点的又一表述。)

　　According to the anti-monotony hypothesis, habituation plays an important role in the evolution of complex vocalizations in songbirds: Increased song complexity reduces habituation of neighboring males and courting females.(根据…)

　　Previous studies of acoustic and bioluminescent interactions had emphasized potential advantages to group-signaling organization, such as minimizing predation, preserving species-specific signal characters, or increasing the attractiveness of the group.(带有小小的强调)

　　48.常见的连接词有，However, also, in addition, consequently, afterwards, moreover, Furthermore, further, although, unlike, in contrast, Similarly, Unfortunately, alternatively, parallel results, In order to, despite, For example, Compared with, other results, thus, therefore……用好连接词能使文章层次清楚，意思明确。比如，叙述有时间顺序的事件或文献，最早的文献可用AA advocated it for the first time.接下来可用Then BB further demonstrated that. 再接下来，可用Afterwards, CC……如果还有，可用More recent studies by DD……

**二、常用句型**

**Beginning**

　　1. In this paper, we focus on the need for

　　2. This paper proceeds as follow.

　　3. The structure of the paper is as follows.

　　4. In this paper, we shall first briefly introduce fuzzy sets and related concepts

　　5. To begin with we will provide a brief background on the

**Introduction**

　　1. This will be followed by a description of the fuzzy nature of the problem and a detailed presentation of how the required membership functions are defined.

　　2. Details on xx and xx are discussed in later sections.

　　3. In the next section, after a statement of the basic problem, various situations involving possibility knowledge are investigated: first, an entirely possibility model is proposed; then the cases of a fuzzy service time with stochastic arrivals and non fuzzy service rule is studied; lastly, fuzzy service rule are considered.

**Review**

　　1. This review is followed by an introduction.

　　2. A brief summary of some of the relevant concepts in xxx and xxx is presented in Section 2.

　　3. In the next section, a brief review of the …. is given.

　　4. In the next section, a short review of … is given with special regard to …

　　5. Section 2 reviews relevant research related to xx.

　　6. Section 1.1 briefly surveys the motivation for a methodology of action, while 1.2 looks at the difficulties posed by the complexity of systems and outlines the need for development of possibility methods.

**Body**

　　1. Section 1 defines the notion of robustness, and argues for its importance.

　　2. Section 1 devoted to the basic aspects of the FLC decision making logic.

　　3. Section 2 gives the background of the problem which includes xxx

　　4. Section 2 discusses some problems with and approaches to, natural language understanding.

　　5. Section 2 explains how flexibility which often … can be expressed in terms of fuzzy time window

　　6. Section 3 discusses the aspects of fuzzy set theory that are used in the …

　　7. Section 3 describes the system itself in a general way, including the ….. and also discusses how to evaluate system performance.

　　8. Section 3 describes a new measure of xx.

　　9. Section 3 demonstrates the use of fuzzy possibility theory in the analysis of xx.

　　10. Section 3 is a fine description of fuzzy formulation of human decision.

　　11. Section 3, is developed to the modeling and processing of fuzzy decision rules

　　12. The main idea of the FLC is described in Section 3 while Section 4 describes the xx strategies.

　　13. Section 3 and 4 show experimental studies for verifying the proposed model.

　　14. Section 4 discusses a previous fuzzy set based approach to cost variance investigation.

　　15. Section 4 gives a specific example of xxx.

　　16. Section 4 is the experimental study to make a fuzzy model of memory process.

　　17. Section 4 contains a discussion of the implication of the results of Section 2 and 3.

　　18. Section 4 applies this fuzzy measure to the analysis of xx and illustrate its use on experimental data.

　　19. Section 5 presents the primary results of the paper: a fuzzy set model ..

　　20. Section 5 contains some conclusions plus some ideas for further work.

　　21. Section 6 illustrates the model with an example.

　　22. Various ways of justification and the reasons for their choice are discussed very briefly in Section 2.

　　23. In Section 2 are presented the block diagram expression of a whole model of human DM system

　　24. In Section 2 we shall list a collection of basic assumptions which a … scheme must satisfy.

　　25. In Section 2 of this paper, we present representation and uniqueness theorems for the fundamental measurement of fuzziness when the domain of discourse is order dense.

　　26. In Section 3, we describe the preliminary results of an empirical study currently in progress to verify the measurement model and to construct membership functions.

　　27. In Section 5 is analyzed the inference process through the two kinds of inference experiments…

**This Section**

　　1. In this section, the characteristics and environment under which MRP is designed are described.

　　2. We will provide in this section basic terminologies and notations which are necessary for the understanding of subsequent results.Next Section

　　2. The next section describes the mathematics that goes into the computer implementation of such fuzzy logic statements.

　　3. However, it is cumbersome for this purpose and in practical applications the formulae were rearranged and simplified as discussed in the next section.

　　4. The three components will be described in the next two section, and an example of xx analysis of a computer information system will then illustrate their use.

　　5. We can interpret the results of Experiments I and II as in the following sections.

　　6. The next section summarizes the method in a from that is useful for arguments based on xx

**Summary**

　　1. This paper concludes with a discussion of future research consideration in section 5.

　　2. Section 5 summarizes the results of this investigation.

　　3. Section 5 gives the conclusions and future directions of research.

　　4. Section 7 provides a summary and a discussion of some extensions of the paper.

　　5. Finally, conclusions and future work are summarized

　　6. The basic questions posed above are then discussed and conclusions are drawn.

　　7. Section 7 is the conclusion of the paper.

**Chapter 0. Abstract**

　　1. A basic problem in the design of xx is presented by the choice of a xx rate for the measurement of experimental variables.

　　2. This paper examines a new measure of xx in xx based on fuzzy mathematics which overcomes the difficulties found in other xx measures.

　　3. This paper describes a system for the analysis of the xx.

　　4. The method involves the construction of xx from fuzzy relations.

　　5. The procedure is useful in analyzing how groups reach a decision.

　　6. The technique used is to employ a newly developed and versatile xx algorithm.

　　7. The usefulness of xx is also considered.

　　8. A brief methodology used in xx is discussed.

　　9. The analysis is useful in xx and xx problem.

　　10. A model is developed for a xx analysis using fuzzy matrices.

　　11. Algorithms to combine these estimates and produce a xx are presented and justified.

　　12. The use of the method is discussed and an example is given.

　　13. Results of an experimental applications of this xx analysis procedure are given to illustrate the proposed technique.

　　14. This paper analyses problems in

　　15. This paper outlines the functions carried out by …

　　16. This paper includes an illustration of the …

　　17. This paper provides an overview and information useful for approaching

　　18. Emphasis is placed on the construction of a criterion function by which the xx in achieving a hierarchical system of objectives are evaluated.

　　19. The main emphasis is placed on the problem of xx

　　20. Our proposed model is verified through experimental study.

　　21. The experimental results reveal interesting examples of fuzzy phases of: xx, xx

　　22. The compatibility of a project in terms of cost, and xx are likewise represented by linguistic variables.

　　23. A didactic example is included to illustrate the computational procedure

**Time**

　　1. Over the course of the past 30 years, .. has emerged form intuitive

　　2. Technological revolutions have recently hit the industrial world

　　3. The advent of … systems for has had a significant impact on the

　　4. The development of … is explored

　　5. During the past decade, the theory of fuzzy sets has developed in a variety of directions

　　6.The concept of xx was investigated quite intensively in recent years

　　7. There has been a turning point in … methodology in accordance with the advent of …

　　8. A major concern in … today is to continue to improve…

　　9. A xx is a latecomer in the part representation arena.

　　10. At the time of this writing, there is still no standard way of xx

　　11. Although a lot of effort is being spent on improving these weaknesses, the efficient and effective method has yet to be developed.

　　12. The pioneer work can be traced to xx [1965].

　　13. To date, none of the methods developed is perfect and all are far from ready to be used in commercial systems.

**Objective / Goal / Purpose**

　　1. The purpose of the inference engine can be outlined as follows:

　　2. The ultimate goal of the xx system is to allow the non experts to utilize the existing knowledge in the area of manual handling of loads, and to provide intelligent, computer aided instruction for xxx.

　　3. The paper concerns the development of a xx

　　4. The scope of this research lies in

　　5. The main theme of the paper is the application of rule based decision making.

　　6. These objectives are to be met with such thoroughness and confidence as to permit …

　　7. The objectives of the … operations study are as follows:

　　8. The primary purpose/consideration/objective of

　　9. The ultimate goal of this concept is to provide

　　10. The main objective of such a … system is to

　　11. The aim of this paper is to provide methods to construct such probability distribution.

　　12. In order to achieve these objectives, an xx must meet the following requirements:

　　13. In order to take advantage of their similarity

　　14. more research is still required before final goal of … can be completed

　　15. In this trial, the objective is to generate…

　　16. for the sake of concentrating on … research issues

　　17. A major goal of this report is to extend the utilization of a recently developed procedure for the xx.

　　18. For an illustrative purpose, four well known OR problems are studied in presence of fuzzy data: xx.

　　19. A major thrust of the paper is to discuss approaches and strategies for structuring ..methods

　　20. This illustration points out the need to specify

　　21. The ultimate goal is both descriptive and prescriptive.

　　22. Chapter 2. Literature Review

　　23. A wealth of information is to be found in the statistics literature, for example, regarding xx

　　24. A considerable amount of research has been done .. during the last decade

　　25. A great number of studies report on the treatment of uncertainties associated with xx.

　　26. There is considerable amount of literature on planning

　　27. However, these studies do not provide much attention to uncertainty in xx.

　　28. Since then, the subject has been extensively explored and it is still under investigation as well in

　　methodological aspects as in concrete applications.

　　29. Many research studies have been carried out on this topic.

　　30. Problem of xx draws recently more and more attention of system analysis.

　　31. Attempts to resolve this dilemma have resulted in the development of

　　32. Many complex processes unfortunately, do not yield to this design procedure and have, therefore, not yet been automated.

　　33. Most of the methods developed so far are deterministic and /or probabilistic in nature.

　　34. The central issue in all these studies is to

　　35. The problem of xx has been studied by other investigators, however, these studies have been based upon classical statistical approaches.

　　36. Applied … techniques to

　　37. Characterized the … system as

　　38. Developed an algorithm to

　　39. Developed a system called … which

　　40. Uses an iterative algorithm to deduce

　　41. Emphasized the need to

　　42. Identifies six key issues surrounding high technology

　　43. A comprehensive study of the… has been undertaken

　　44. Much work has been reported recently in these filed

　　45. Proposed/Presented/State that/Described/Illustrated/

　　Indicated/Has shown / showed/Address/Highlights

　　46. Point out that the problem of

　　47. A study on …was done / developed by []

　　48. Previous work, such as [] and [], deal only with

　　49. The approach taken by [] is

　　50. The system developed by [] consists

　　51. A paper relevant to this research was published by []

　　52. []’s model requires consideration of…

　　53. []’ model draws attention to evolution in human development

　　54. []’s model focuses on…

　　55. Little research has been conducted in applying … to

　　56. The published information that is relevant to this research…

　　57. This study further shows that

　　58. Their work is based on the principle of

　　59. More history of … can be found in xx et al. [1979].

　　60. Studies have been completed to established

　　61. The …studies indicated that

　　62. Though application of xx in the filed of xx has proliferated in recent years, effort in analyzing xx, especially xx, is lacking.

**Problem / Issue / Question**

　　63. Unfortunately, real-world engineering problems such as manufacturing planning do not fit well with this narrowly defined model. They tend to span broad activities and require consideration of multiple aspects.

　　64. Remedy / solve / alleviate these problems

　　67. … is a difficult problem, yet to be adequately resolved

　　68. Two major problems have yet to be addressed

　　69. An unanswered question

　　70. This problem in essence involves using x to obtain a solution.

　　71. An additional research issue to be tackled is ….

　　72. Some important issues in developing a … system are discussed

　　73. The three prime issues can be summarized:

　　74. The situation leads to the problem of how to determine the …

　　75. There have been many attempts to

　　76. It is expected to be serious barrier to

　　77. It offers a simple solution in a limited domain for a complex