

**CODING OF INORGANIC SUBSTANCES
BASING UPON OCTADECIMAL
CLASSIFICATION
(OC)**

A Thesis
Submitted to the
Central Department of Library and Information Science in
Partial Fulfillment of the Requirement of Degree of
Master in
LIBRARY AND INFORMATION SCIENCE

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By
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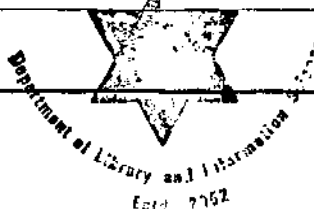


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LETTER OF RECOMMENDATION

This thesis entitled "CODING OF INORGANIC SUBSTANCES BASING UPON OCTADECIMAL CLASSIFICATION" has been prepared by Mr. Manoj Kumar Sah under my supervision. I hereby recommend this thesis for examination as a partial fulfillment of the requirements for the Degree in MASTER OF LIBRARY AND INFORMATION SCIENCE.

Date: February, 2006

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LETTER OF ACCEPTANCE

We certify that this thesis entitled "CODING OF INORGANIC SUBSTANCES BASING UPON OCTADECIMAL CLASSIFICATION" by Mr. Manoj Kumar Sah to the Central Department of Library and Information Science, Faculty of Humanities and Social Science, Tribhuvan University, in partial fulfillment of the requirements for the Degree in MASTER OF LIBRARY AND INFORMATION SCIENCE has been found satisfactory. Therefore, thesis as a part of the said Degree has been accepted.

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Manoj Kumar Sah
February, 2006

*This dissertation is dedicated to you,
and to the infinite spirit of well-being
that lies within you.*

PREFACE

A library classification is a system of coding and organizing library materials (books, serials, audiovisual materials, computer files, maps, manuscripts, regalia) according to their subject. A classification consists of tables of subject headings and classification schedules used to assign a class number to each item being classified, based on that item's subject.

This dissertation on "Coding of inorganic substances basing upon Octadecim Classification" has been developed to meet the requirements of the librarians of special library inorganic chemistry and lab boy of laboratory containing several inorganic substances. The publication of new documents on inorganic chemistry is increasing day by day. It is a good indication for the development of inorganic chemistry and its users. But it is being challenged to the librarians to organize their library collections in such a manner that could help reduce the time of library personnel in organizing and also helping to reduce the time of users in retrieving their desired library documents with ease and accurate in a least possible time and lab boy to a big laboratory containing several inorganic substances in systematic way. Now it is essential to develop a coding system for inorganic chemistry. Even so, so far there has not been specific classification scheme for inorganic chemistry but general classification scheme is available which is not appropriate, flexible, more coverage by using few code numbers. This system based on modern periodic table, so its code number is easy to understand for the inorganic chemistry users.

This dissertation has been divided into six chapters. The first chapter deals with general aspects of classification, its background, needs, problems, objectives, hypothesis, scope, limitations, significance, of the study. Definition of terms gives the meaning of the related terms. The study is organized to include the whole frame in summarized form. The second chapter concerned with a review of literature related to the names of elements, their symbols, classification of elements; periodic tables and lastly the most popular classification schemes like DDC, UDC, and CC are reviewed. The third chapter deals with the research methodology in which research design, population, sampling procedure, data collection procedure, and data analysis procedure are described. The fourth chapter introduces the concept of newly developed coding system for inorganic chemistry in which its introduction, parts of the scheme, Schedules i.e. Main Schedule and Fused Subject Schedule, Auxiliaries i.e. Common auxiliaries and Special auxiliaries, Notational system, Language Table, Variant Table, Area Table, Person Table, Table, Relations of subjects, combination of numbers, schedules of Inorganic chemistry Index. The fifth chapter discusses analysis and presentation of the study in which comparison basing between proposed coding system with the most popular classification schemes like DDC, UDC, and CC. The sixth chapter contains a brief summary of the study is described at the end. Recommendations are also suggested to the related person and institutions. The dissertation written in simple language and lucid style, is therefore a comprehensive and yet compact presentation for understanding the main provisions of OC. It is hoped that practicing librarians, lab boy and students of library and information science will find it useful in their works study.

February, 2006

Manoj Kumar Sah

ABSTRACT

The classification of inorganic elements and its background are examined in the introduction part. In background, Inorganic elements and its current situation are stated. Statements of problem, objectives, hypothesis, scopes, limitations, significance and need of the study are also described. Definition of terms gives the meaning of the related terms. The study is organized to include the whole frame in summarized form.

The information sources of relevant studies are reviewed. Literature related to names of elements, their symbols, classification of the elements, periodic tables and lastly library classification of inorganic chemistry are reviewed.

Research methodology, research design, population, sampling procedure, data collection procedure, and data analysis procedure are discussed theoretically and are applied practically to complete the study.

The study area tries to make clear the concept of newly devised coding system for inorganic chemistry in which its introduction, parts of the scheme, Schedules i.e. Main Schedule and Fused Subject Schedule, Auxiliaries i.e. Common auxiliaries and Special auxiliaries, Notational system, Language Table, Variant Table, Area Table, Person Table, Time Table, Relations of subjects, combination of numbers, schedules of Inorganic chemistry and Index are described.

Collection, interpretation, analysis and presentation of data are compared with most popular existing classification schemes such as Dewey Decimal Classification, Universal Decimal Classification and Colon Classification with the newly devised coding system in a systematic way following the methodology prescribed by the Department.

A brief summary of the study is described at the end. Recommendations are also suggested to the related person and institutions and it is hoped that they will accept it gladly.

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TABLE OF CONTENTS

TITLE PAGE	i
LETTER OF RECOMMENDATION	ii
LETTER OF ACCEPTANCE	iii
ACKNOWLEDGEMENT	iv
DEDICATION	v
PREFACE	vi
ABSTRACT	vii
CATALOGUE OF THE THESIS	viii
CONTENTS	x
LIST OF TABLES	xiii
LIST OF ACRONYMS / ABBREVIATIONS	xiv
CHAPTER ONE	1-6
Introduction	
1.1 Background	1
1.2 Focus of the Study	1
1.3 Statements of Problem	2
1.4 Objectives	2
1.5 Hypothesis	2
1.6 Scope and Limitation of the Study	3
1.7 Significance of the Study	3
1.8 Definitions of terms / Glossary	3
1.9 Organization of the Study	6
CHAPTER TWO	7-18
2 REVIEW OF LITERATUR	
2.1 Element Names and Symbols	7
2.2 Earlier attempts of classification of elements	8
2.3 Prout's Hypothesis	9
2.4 Dobereiner's triads	9
2.5 Newland's law of Octaves	9
2.6 Lothar Meyer's atomic volume curve	10
2.7 Mendeleev's Periodic Law	10
2.8 Modern Classification	11
2.9 Modern periodic law	11
2.10 Modern periodic table	11
2.11 Dewey Decimal Classification	13
2.12 Universal Decimal Classification	15
2.13 Colon Classification	16

CHAPTER THREE	18-19
3 RESEARCH METHODOLOGY	
3.1 Research Design	18
3.2 Population	18
3.3 Sampling procedure	18
3.4 Data collection procedure	19
3.5 Data Analysis procedure	19
CHAPTER FOUR	20-69
4 Octadecimal Coding System	
4.1 Introduction	20
4.2 Principles	20
4.3 Characteristics	21
4.4 Notational System	21
4.5 Structure of Octadecimal Numbering System	22
4.6 Extrapolation in an array	22
4.7 Interpolation in an array	22
4.8 Shelving or Filing Order	23
4.9 Citation Order	24
4.10 Parts of the scheme	25
4.11 Common auxiliaries	31-53
4.11.1 Language Table	31
4.11.2 Variant Table	35
4.11.3 Area Table	36
4.11.4 Person Table	41
4.11.5 Time Table	43
4.12 Combination of numbers	49
4.13 Relation of Subjects	50
4.13.1 General Relation	51
4.13.2 Bias Relation	51
4.13.3 Fused Relation	52
4.13.4 Tool Relation	52
4.13.5 Influence Relation	53
4.13.6 Main Schedule	54
4.14 Index	59-69

CHAPTER FIVE **70-77**

5 ANALYSIS AND PRESENTATION **70**

5.1	Species of classification for subjects	70
5.2	Theory	70
5.3	Parts of the scheme	71
5.4	Main Classes	71
5.5	The Division	72
5.6	The section	72
5.7	The subsection	73
5.8	Some examples of inorganic acids	73
5.9	Species of digits	73
5.10	Indicator digits	74
5.11	Facets indicators	74
5.12	Phase Relation	74
5.13	Area Table	75
5.14	Examples from Area Tables	75
5.15	Language Table	76
5.16	Examples from Language Table	76
5.17	Examples from Time Table	77

CHAPTER SIX **78-79**

6.1	Summary/Conclusion	78
6.2	Recommendation	78

7 BIBLIOGRAPHY **80-81**

8	List of Appendices	82
8.1	Periodic Table of Inorganic Elements	82
8.2	Library of Congress Classification	83
8.3	Bibliographic Classification 2	84
8.4	CV of Researcher	85

LIST OF THE TABLES

1. Common Auxiliaries and their facet indicators	29
2. Timetable1	44
3. Timetable2	44
4. Timetable3	45
5. Timetable4	46
6. Timetable5	47
7. Timetable6	48
8. Table of indicators digits in different levels	51
9. Species of classification for subjects	70
10. Theory	70
11. Parts of the scheme	71
12. Main Classes	71
13. The Division	72
14. Library classification of Inorganic Chemistry	72
15. Library classification of Alkaline earth metals	73
16. Some examples of inorganic acids	73
17. Species of digits	73
18. Indicator digits	74
19. Facets indicators	74
20. Phase Relation	74
21. Area Table	75
22. Examples from Area Tables	75
23. Language Table	76
24. Examples from Language Table	76
25. Examples from Time Table	77

LIST OF ACRONYMS AND ABBREVIATIONS

AT	Area Table
BC	Bibliographic Classification
CC	Colon Classification
CO	Citation Order
DDC	Dewey Decimal Classification
LC	Library of Congress Classification
LT	Language Table
MC	Main Class
MT	Matter Table
NNL	Nepal National Library
OC	Octadecimal Classification
PT	Person Table
QT	Quality Table
TT	Time Table
TUCL	Tribhuvan University Central Library
UDC	Universal Decimal Classification
VT	Variant Table

CHAPTER ONE

Introduction

1.1 Background

The word classification comes from the Latin word "classis". Ordinarily, classification is a process of grouping. It means putting together like entities and separating unlike entities. The entities are thus arranged according to likeness and unlikeness. Characteristics are used as a basis for determining the likeness and unlikeness entities.

One can not perform the act of reasoning, unless one possesses power of classification. In order to distinguish objects, one should be able to visualize or see them together. Classification helps to convert unorganized thought and impressions into recognizable patterns. One can not live at all without power of being able to classify the things around the world. Classification pervades various activities of the life. However, most of us are unaware of the fact that we classify to such a large extent in our everyday life. For example, we distinguish people on the basis of height, short, medium and tall appearance. A greengrocer may arrange oranges by size or quality.

In a large library, there are thousands of books. In spite of this if we ask for a particular book, the library staff can locate it easily. How is it possible? In a library the books are classified into various categories and subcategories. They are arranged on shelves accordingly. Therefore, the location of books becomes easy.

Scientific classifications arrange the phenomena of the natural world as an aid to systematic study. They include the arrangements in systematic botany, zoology, the table of chemical elements, and they often form the basis of field guides.

Before the nineteenth century only a few elements were known. These elements could be easily studied individually with the passage of time, many more elements were discovered. More and more of their compounds were prepared. Study of these elements and compounds individually became more difficult. So, it was felt that these elements should be classified into a few groups to make their study systematic and easier.

The first successful classification which includes all the known elements of inorganic chemistry at that time namely Mendeleev's periodic table, and about the long form of modern periodic table which is an improvement over Mendeleev's work.

In this context knowing the setbacks of existing classification of inorganic elements has been ventured devising a new coding system of library classification for inorganic elements.

1.2 Focus of the Study

- i. To classify the publication of inorganic elements by using few code numbers;
- ii. To develop simple code number e.g. (easy to understand, read, pronounce, write / type, use) for assigning code number to the publication of existing inorganic elements;
- iii. To put inorganic elements in an order following the coding system.

1.3 Statement of the problem

The publication of new documents on inorganic chemistry is increasing day by day. It is a good indication for the development of inorganic chemistry and its users. But it is being challenged to the librarians to organize their library collections in such a manner that could help reduce the time of library personnel in organizing and also helping to reduce the time of users retrieving their desired library documents with ease and accurate in a least possible time. In the same way it has become to organize and run a big laboratory containing several inorganic substances in systematic way. Now it is essential to develop a library coding system for inorganic chemistry. Even so, so far there has not been specified classification scheme for inorganic chemistry but general classification scheme is available, which is not appropriate. flexible, more coverage by using few code numbers, with compound radicals and based on modern periodic table.

1.4 Objectives

a) General objective

- i. General objective of this study is to develop a new coding system by introducing a new numbering system to solve the current problems of librarians of inorganic chemistry field;
- ii. To enable the systematic storage and retrieval of inorganic substances from a laboratory.

b) Specific objectives

The specific objectives of this proposed study are as follows: -

- i. To develop new coding system by using limited code number with wide coverage of inorganic elements;
- ii. To develop new coding system having comparatively least notational systems;
- iii. To develop simplified phase relation system to combine / relate subjects and facets of inorganic elements;
- iv. To develop simple facet indicator to distinguish or separate the characters of the ideas represented by facets.

1.5 Hypothesis

The hypothesis of this study has been given as follows: -

- i. The proposed new coding system would cover more areas of inorganic elements by using limited code numbers;
- ii. The proposed new coding system would have comparatively least notational systems;
- iii. The proposed new coding system would have provision of simplified phase relation system to combine / relate subjects and facets;
- iv. The proposed new coding system would have simple facet indicator to distinguish or separate the character of the ideas represented by facets;
- v. Finally, this system will not only to code the literature on inorganic elements, but it will help to store and retrieve it in a laboratory.

1.6 Scope and Limitation of the study

The proposed scheme will be suitable for simple and inexpensive shelves arrangements, catalogues, index, bibliographies, documents lists, etc. of macro and micro documents in Inorganic Chemistry.

Since the proposed study is in preliminary stage, the study will be limited in Inorganic Chemistry. This scheme has been prepared by study of very few related documents within a limited period of time. So the scheme may have some defects. Therefore, any comments, suggestions and supplements are welcomed.

1.7 Significance of the study

- i. It becomes brevity of code number since a book has limited space to write code number on spines visible;
- ii. It becomes more inorganic elements by using limited number of digits;
- iii. It becomes very few notations compare to other schemes;
- iv. It becomes save the time of librarians to organize their library collections and users retrieve their desired information and elements itself with ease and accurate in a least possible time;
- v. It becomes a simple classification scheme
 - Easy to read;
 - Easy to understand;
 - Easy to pronounce;
 - Easy to use;
 - Easy to write / type.
- vi. It becomes easy to arrange subjects since the proposed scheme is based on numerical system;
- vii. It becomes very simple shelving or filing order, i.e. Plus "+", hyphen "-", 0 to 9 & A to Z
- viii. It gets more provision for relations to combine/relate inorganic elements and facets;
- ix. It has least number of digits in every facet, so it will be easy to store in memory;
- x. It has facet indicator (connecting digits) to distinguish or separate the character of the id represented by facets;
- xi. It has very simple or easily remembered notation for facet indicator, i.e. T is for time, L for language, M is for matter, P is for person etc.
- xii. It has provision for extrapolation for a growing universe of subjects by using empty digit;
- xiii. It has provision for interpolation for a growing universe of subjects by using empty digits;
- xiv. It has enough space for newborn subjects or to have more hospitality in chain due to octadecimal fraction and in array due to quite broad base number;
- xv. It avoids long instructions, theory, and rules.

1.8 Definitions of terms / Glossary

A glossary has been prepared to define the terms, which has been used during the preparation. It has been arranged in alphabetical order. And it makes easy to understand the proposed new coding system. All the definitions are taken from Dewey decimal classification and relative index / devised by Melvil Dewey ; edited by Joan S. Mitchell. – 21st ed. – New York : Forest, 1996. p. lvii and from S. R. Ranganathan ' Prolegomena to library classification ; assisted by M.A. Gopinathan . – 3rd ed. – Bombay: Asia Publishing House, 1979.

Array: - The classes derived from universe on the basis of a single characteristic, at any one stage in the progress towards its complete assortment, and arranged in the preferred sequence.

Base: - A set of digits used by a notational system. Like OC has eighteen base using these set of digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, & H.

Citation order: - The order in which two or more facets of a class is to be combined in number building.

Class number: - The class number of a book is a translation of the name of its specific ordinal numbers.

Classification Scheme: - A scheme of classes fitted with terminology and notation. Classification scheme may be either general (to cover all subjects equally) or special (limited to specific subjects).

Classification: - Classification is the actual or ideal arrangement together of those, which are alike, and the separation of those, which are unlike.

Classificationist: - One who makes a scheme of classification.

Classifier: - One who classifies.

Classifying: - Classifying is equivalent to translating the name of a subject from natural language into classificatory language; i.e. a language of ordinal numbers.

Coordinate: - Coordinate describes a number or topic at a level equal to another number or topic in the same hierarchy.

Decimal numbering system: -The numbering system, which has ten base numbers. These ten symbols are 0, 1, 2, 3, 4, 5, 6, 7, 8, & 9. And place values increase in powers of 10. DDC and UDC are examples of Decimal numbering system.

Discipline: - An organized field of study or branch of knowledge, i.e. 9 History, E8 Inorganic Chemistry. In OC subjects are arranged by disciplines.

Division: -The second level of subdivision in the classification, represented by two digits notation. e. g. E5 Physics, EF Microbiology.

Facet indicator: - A digit used to introduce notation representing a characteristic of the subject. e.g. 0L is a facet indicator for Language, 0T is a facet indicator for Time.

Empty digit: - An empty digit is a digit with ordinal value but without semantic value.

Emptying digit: -The emptying digit is a digit which has its usual ordinal value as well as semantic value, "having the power to deprive the preceding rich digit of its power of representing an idea".

Extrapolation: - An array of class numbers should admit of any number of new coordinate numbers being added at the end of the array.

Facet: - Any of the various categories into which a given class may be divided. Each category contains terms based on a single characteristic of divisions.

For example: - A0W76V2TF6 Bibliography of politics of Nepal in 20th century, W76 is a facet which represents Geographical area, Nepal, V2 is a facet which represents Bibliography, and TF6 is also a facet which represents 20th century. Zero before W is added according to the rule of OC, i.e. One zero is added before first auxiliary.

Heading: - The word or phrase used as the caption of a given class is known as heading.

Hierarchy: -The arrangement of a classification system from general to specific.

Interpolation: - An array of class numbers should admit of the interpolation of any number of new coordinate numbers being added at any point in the array.

Library Classification: -A classification scheme designed to arrange the physical items of a library collection. Also called bibliographic classification.

Linear notation: - Notation with the digits in the class number arranged in a straight line.

Main class: - One of the eighteen major subdivisions of OC, represented by the one digit notation is called main class. e. g. A Political Science, D Economics.

Mixed base: -Base containing two or more species of digits, e.g. Indo- Arabic numerals and Roman capitals.

Mixed Notation: -A notation system in which a class number may have two or more species of digits.

Notation: -Numbers, letters or other symbols used to represent the main and subordinate divisions of a classification scheme.

Notational System: -System of ordinal numbers used to represent the classes in a scheme of classification.

Number building: - The process of constructing a number by adding notation from the tables or other parts of schedules to a base number.

Octadecimal Numbering System: - The numbering system, having eighteen base numbers. These eighteen symbols are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, & H. And place value increases in the power of 18 in Octadecimal Numbering System.

Octal Numbering System: - The numbering system, which has eight base numbers.

Pure base: -Base containing one and only one species of digits is called pure base.

Right-handed notation: - Notation with the digits in the class number arranged from left to right in a horizontal straight line.

Section: -The third level of subdivision in the classification, represented by three digits notation e.g. E81 Alkali metals, E8F Halogens.

Special classification: - A scheme designed for the depth classification of micro subjects, going with one and only one specified subject field.

Subject: - Subject refers to an organized systematized body of ideas whose extension and intension are likely to fall coherently within the field of interest and comfortably within the intellectual competence and the field of inevitable specialization of a normal person.

Subordinate: - Subordinate describes a number or topic at a lower (narrower) level than another number or topic in the same hierarchy.

Summary: - A listing of the chief subdivisions of a class that provides an overview of its structure. Summaries are also provided for the main classes, divisions, and sections of the classification as a whole.

Superordinate: - Superordinate describes a number or topic at a higher (broader) level than another number or topic in the same hierarchy.

1.9 Organization of the study

Sequence of topics and sub topics of the study have been organized in suitable manner that the study is easy to understand. The definitions of terms are also given to help the reader. This study has been organized according to the format given by the Central Department Library and Information Science; T. U.

This thesis has been divided into six chapters. The first chapter deals with the introduction of the study which includes background, focus of the study, statements of problem, objectives, hypothesis of the study, scope and limitation of the study, significance of the study, definitions of terms and glossary, and organization of the study.

In the second chapter, a review of literature related to the names of elements, their symbols, classification of elements, periodic tables and lastly the most popular classification schemes like, Dewey Decimal Classification, Universal Decimal Classification, and Colon Classification are reviewed.

In third chapter, the research methodology in which research design, population sampling procedure, data collection procedure, and data analysis procedure are described.

The fourth chapter deals with the study area or octadecimal coding for inorganic substances (a classification scheme) in which introduction of the proposed coding system, principles, characteristics, notational system, parts of the scheme, Schedules i.e. Main Schedule and Fused Subject Schedule, Auxiliaries i.e. Common auxiliaries and Special auxiliaries, Notational system, Language Table, Variant Table, Area Table, Person Table, Time Table, combination of numbers, relations of subjects, i.e. General, Bias, fused, Influence, and To Main Schedule of inorganic chemistry and Index are described.

The fifth chapter contains analysis and presentation of the study in which comparative basing between proposed coding system with the most popular classification schemes like Dewey decimal classification, Universal Decimal Classification, and Colon Classification.

The sixth chapter contains a brief summary of the study is described at the end. Recommendations are also suggested to the related person and institutions and it is hoped that they will accept it gladly.

CHAPTER TWO

Review of Literature















This is a special coding system for inorganic chemistry, so the literature related to names of elements, their symbols, classification of the elements, periodic tables and lastly library classification of inorganic chemistry are reviewed. The literature is collected from different types of books, encyclopedias, and websites.

“Chemistry is a branch of science in which we study about the composition, structure and properties of matter and the changes which matter undergoes by the interaction of these various forms. A chemist is concerned with anything that occupies space and has mass, inertia and weight. The science of chemistry has become so vast that it has been divided into several principal branches. Inorganic chemistry is a branch of chemistry which is concerned with the chemistry of the elements, other than carbon and their compounds”¹

2.1 Element Names and Symbols

2.1.1 Symbols for Atoms

“Dalton used symbols to represent his atoms. However, he did not use the same symbols that we use. He used circles with markings to represent the various individual atoms. He used circles with dots, lines, crosses and shading in them. When he ran out of marks he put letters in the circles to represent the elements. Each different symbol represented a different kind of atom or the atom of a different element.

 Hydrogen	 Sulfur	 Gold	 Zinc
 Carbon	 Phosphorus	 Iron	 Lead
 Oxygen	 Copper	 Chlorine	
 Nitrogen	 Silver	 Tin	

About ten years later, in Sweden, Berzelius suggested just using letters to represent atoms of each element and also to represent the elements in general. These are the symbols that we use today.”²

2.1.2 Names of Elements

“Some elements have been known since ancient times, even though they may not have been known to be elements at that time. They were known prior to and during the time that various cultures and languages developed. Consequently some of these elements have names that are different in each culture or each language. Gold is a good example. Probably every culture has a name for the element gold, just as every culture would have its own name for it.”

¹ Jha, Jai Shankar and Guglani, Surindra K. “A text book of chemistry” . – Jalandhar City : Surya Publication, 1992,P.1

² <http://dl.clackamas.cc.or.us/ch104-03/element.htm> 12/12/2005

compound water and its own name for the sun. So that we might have just one symbol for each element, Berzelius based the symbol on the Latin name for each element. Symbols used for elements in a way that will hopefully make them a little easier for we to remember (or at least understand why some of them are so different than the names we use for those elements). Chemical names for compounds so that you will be able to use them to determine what elements are contained in them.”³

2.1.3 Symbols for Elements

“Some symbols should make sense to you immediately--such as C for carbon, O for oxygen and S for sulfur. This is because the English name is very similar to the Latin name for these elements. Some of the others should be quite baffling--such as Na for sodium, K for potassium, Fe for iron, Au for gold, and Ag for silver. This is because the English and Latin names for these elements are quite different.

Some of the elements have a single letter for a symbol. These are generally the very common ones such as oxygen, or carbon, or they might be the only elements that start with that particular letter.

Most of the elements have double letter symbols, and we have to make sure that we use an upper case for the first letter and a lower case for the second letter. That second letter is usually the first non-common letter between elements that have names starting with the same first letter. For example, chromium and chlorine both start with "C" and so does the symbol. They both have "h" for the second letter but the third letter is different--it's "l" for chlorine, "r" for chromium--and thus the symbols for those two elements are Cl for chlorine and Cr for chromium.

Over the years chemists not only named and symbolized the elements, they also discovered new ones and made a great many observations and measurements of the elements. They observed similarities and patterns among the pure elements, which cried out for someone to arrange them in some sort of organizational scheme. This was done and the result, after a number of modifications, is the modern periodic table of the elements”⁴.

2.2 Earlier attempts of classification of elements

“Before the nineteenth century only a few elements were known. These elements could be easily studied individually with the passage of time, many more elements were discovered. More and more of their compounds were prepared. Study of these elements and compounds individually became more difficult. So, it was felt that these elements should be classified into a few groups to make their study systematic and easier.

One of the earliest attempts towards the classification of elements was to divide these into metals and non-metals. This method of classification failed because most of the elements fell into the category of metals, whereas only a few elements could be grouped as non-metals. There were also a few elements which showed the properties of both metals and non-metals.”⁵

³ <http://dl.clackamas.cc.or.us/ch104-03/element.htm> 12/12/2005

⁴ <http://dl.clackamas.cc.or.us/ch104-03/symbols.htm> 12/12/2005

⁵ Jain, S. K. “Conceptual chemistry”. - 3rd ed. - New Delhi : S. Chand and Company, 2004, P. 323.

2.3 Prout's Hypothesis

"In 1815 Prout pointed out that 'the atomic weights of the elements are simple multiples of the atomic weight of hydrogen.'

Prout's hypothesis implies that all the elements are built of the hydrogen atoms. It was later found out that the exact atomic weight of the most of elements was not whole numbers and hence, was strong evidence against this hypothesis. Nevertheless, for the first time Prout's hypothesis suggested that all elements are related to another through atomic weights and there may be some relationship between the properties of elements and their atomic weights."⁶

2.4 Dobereiner's triads

"In 1829, a German scientist, John Dobereiner classified certain elements in the groups of three called triads. The three elements in a triad had similar chemical properties. When three elements in a triad were arranged in order of increasing atomic masses, the atomic mass of the middle element was found to be approximately equal to the arithmetic mean of the other two elements. It was also that the middle member of any triad had physical properties that were nearly the average of the other two."⁷

Dobereiner's idea of classification of elements into triads did not receive wide acceptance as he could arrange only a few elements in this manner.

2.5 Newland's law of Octaves

In 1864 John Alexander Newland, an English chemist said that "the elements arranged in the order of atomic weights 'the eight elements, starting from a given one, is a kind of repetition of the first, like the eight note an octave of music' and he called this the law of octaves:

1H	2Li	3Be	4B	5C	6N	7O
8F	9Na	10Mg	11Al	12Si	13P	14S
15Cl	16K	17Ca	18Cr	19Ti	20Mn	21Fe etc.

This is based on what are now called the atomic numbers of the elements, but was very satisfactory since manganese, for example does not resemble phosphorous. Newland pointed out that regularities appear only when the atomic weights derived systematically are used, and his table contains the germ of the periodic law."⁸

However, Newland could arrange elements in this manner only up to calcium out of a total of over sixty elements known at his time. Because of this shortcoming his work was not received well by the scientific community. The next breakthrough in classification of elements came in the form of Mendeleev's work.

⁶ Jha, Jai Shankar and Guglani, Surindra K. "A text book of chemistry". - Jalandhar City : Surya Publication, 1992, P.139

⁷ Jain, S. K. "Conceptual chemistry". - 3rd ed. - New Delhi : S. Chand and Company, 2004, P. 323.

⁸ Partington, J. R. "A text book of inorganic chemistry". - 6th ed. - London : The English Language Book Society, 1963, P.366.

2.6 Lothar Meyer's atomic volume curve

A German chemist Julius Lothar Meyer in 1869 was looking at physical properties of elements along with their valence states. He made a table that contained a preliminary tabulation of 28 elements. The table showed how the integral valence changed as the atomic weight of elements increased.

⁹ Meyer considered the volume taken up by fixed weights of the various elements. Under such conditions, each weight contained the same number of atoms of its particular element. This meant that the ratio of the volumes of the various elements was equal to the ratio of the volume of single atoms of the various elements. Thus Lothar Meyer could determine the atomic volume of elements.

2.7 Mendeleev's Periodic Law

Dmitry Mendeleev Russian chemist while trying to classify elements discovered that arranging in the increasing order of atomic mass, elements with similar chemical properties occurred periodically. In 1869, he stated this observation in the following form which is known as Mendeleev's Periodic Law.

A periodic function is the one which repeats itself after a certain interval. Thus, according to the periodic law the chemical and physical properties of elements repeat themselves at certain intervals when they are arranged in the increasing order of their atomic mass.

A tabular arrangement of the elements based on the periodic law is called the periodic table. Mendeleev believed that atomic mass of elements was the most fundamental property. He arranged them in its increasing order in horizontal rows till he encountered an element which had properties similar to the first element. He placed this element below the first element and then started the second row of elements. Proceeding in this manner he could arrange all the known elements according to their properties and thus created the first periodic table.

2.7.1 Main features of Mendeleev's periodic table

1. The horizontal rows present in the periodic table are called periods. We can see that there are seven periods in the periodic table. These are numbered from 1 to 7 (Arabic numerals).

2. Properties of elements in a particular period show regular gradation (i.e. increase or decrease) from left to right.

3. The vertical columns present in it are called **groups**. You must have noticed that there are nine in number and are numbered from I to VIII and Zero (Roman numerals).

4. Groups I to VII are subdivided into A and B subgroups. Groups Zero and VIII don't have any subgroups.

5. All the elements in a particular group are chemically similar in nature. They show regular gradation in their physical properties and chemical reactivities.

2.7.2 Merits of Mendeleev's periodic classification

i. Classification of all elements

Mendeleev's was the first classification which successfully included all the elements.

ii. Prediction of new elements

Mendeleev's periodic table had some blank spaces in it. These vacant spaces were for elements that were yet to be discovered.

⁹ http://home.att.net/~cat6a/class_elem-III.htm 12/12/2005

2.7.3 Defects in Mendeleev's periodic classification

In spite of being a historic achievement Mendeleev's periodic table had some defects in it. The following were the main defects in it:

i. Position of hydrogen

Hydrogen resembles alkali metals (forms H^+ ion just like Na^+ ions) as well as halogens (forms H^- ion similar to Cl^- ion). Therefore, it could neither be placed with alkali metals (group I) nor with halogens (group VII).

ii. Position of isotopes

Different isotopes of same elements have different atomic masses; therefore, each one of them should be given a different position in the periodic table. On the other hand, because they are chemically similar, they had to be given same position.

iii. Anomalous pairs of elements

At certain places, an element of higher atomic mass has been placed before an element of lower atomic mass.

2.8 Modern Classification

Henry Moseley, an English physicist discovered in the year 1913 that atomic number is the most fundamental property of an element and not its atomic mass. Atomic number, (Z), of an element is the number of protons in the nucleus of its atom. The number of electrons in a neutral atom is also equal to its atomic number. This discovery changed the whole perspective about elements and their properties to such an extent that a need was felt to change the periodic law also. Now we shall learn about the changes made in the periodic law.

2.9 Modern periodic law

After discovery of atomic number the periodic law was modified and the new law is based upon atomic numbers in place of atomic masses of elements. : 68 : Periodic Classification of Elements

The Modern Periodic Law states, "The chemical and physical properties of elements are a periodic function of their atomic numbers"

2.10 Modern periodic table

The periodic table based on the modern periodic law is called the Modern Periodic Table. Many versions of this periodic table are in use but the one, which is most commonly used, is the Long Form of Modern Periodic Table. If we look at the modern periodic table shown in figure you will observe that it is not much different from Mendeleev's periodic table. Groups

There are 18 vertical columns in the periodic table. Each column is called a group. The groups have been numbered from 1 to 18 (in Arabic numerals) from left to right. Group 1 on extreme left position contains alkali metals (Li, Na, K, Rb, Cs and Fr) and group 18 on extreme right position contains noble gases (He, Ne, Ar, Kr, Xe and Rn).

All elements present in a group have similar electronic configurations and have same number of valence electrons. we can see in case of group 1 (alkali metals) and group 17 elements (halogens) that as one moves down a group, more and more shells are added.

Group 1 Group 17

elements have been named after the 1st elements lanthanum present in their position in the periodic table.

These elements have been named after the 1st elements actinium present in their position in the periodic table, including elements up to atomic number 118. Elements 114, 116 and 118 have been reported only recently. : 70: Periodic Classification of Elements

2.13 Merits of modern periodic table over Mendeleev's periodic table

The modern periodic table is based on atomic number, which is more fundamental property of an atom than atomic mass. The long form of modern periodic table is therefore free of main defects of Mendeleev's periodic table.

i. Position of isotopes

All isotopes of the same elements have different atomic masses but same atomic number.

Therefore, they occupy the same position in the modern periodic table, which they should have because all of them are chemically similar.

ii. Anomalous pairs of elements

When elements are arranged in the periodic table according to their atomic numbers the anomaly regarding certain pairs of elements in Mendeleev's periodic table disappears.¹⁰

2.14 Dewey Decimal Classification

The Dewey Decimal Classification (DDC, also called the Dewey Decimal System) is a system of library classification developed by Melvil Dewey in 1876, and since greatly modified and expanded in the course of the twenty-two major revisions, which have occurred up until 2004.

Main classes

The system is made of up ten categories:

- “000 Computers, information and general reference
- 100 Philosophy and psychology
- 200 Religion
- 300 Social sciences
- 400 Language
- 500 Science and mathematics
- 600 Technology
- 700 Arts and recreation
- 800 Literature
- 900 History and geography”¹¹

¹⁰ <http://www.nios.ac.in/secscicour/CHAPTER04.pdf> 12/ 12/ 2005

¹¹ Dewey, Melvil “Decimal classification and relative index”; edited by Joan S. Mitchell. – 22nd ed. – New York Forest, 1996, p. v.

The above order of main classes is based on helpful sequence of subjects. The above main classes indicate that each main class represents either a broad discipline or a group of related disciplines. However, this is not true for 000 classes.

The ten divisions of main class 500 "Science and mathematics" are given below: -

- "500 Science
- 510 Mathematics
- 520 Astronomy
- 530 Physics
- 540 Chemistry
- 550 Earth Sciences
- 560 Paleontology
- 570 Life Sciences. Biology
- 580 Plants
- 590 Animals"¹²

The ten sections of division 540 "Chemistry" are given below: -

- "540 Chemistry
- 541 Physical & allied Science
- 542 Techniques, theoretical, methods
- 543 Analytical Chemistry
- 544 Qualitative analysis
- 545 Quantitative analysis
- 546 Inorganic Chemistry
- 547 Organic Chemistry
- 548 Crystallography
- 549 Mineralogy"¹³

- "546.2 Hydrogen and its compound
- 546.3 Metals, their compounds
- 546.4 Groups 3B
- 546.5 Groups 4B, 5B, 6B, 7B
- 546.6 Groups 8, 1B, 2B, 3B, 4A
- 546.7 Groups 5A, 6A, 7A, 0
- 546.8 Periodic law and table"¹⁴

¹² Dewey, Melvil "Decimal classification and relative index"; edited by Joan S. Mitchell. — 22nd ed. — New York Forest, 1996, p. vi.

¹³ Dewey, Melvil "Decimal classification and relative index"; edited by Joan S. Mitchell. — 22nd ed. — New York Forest, 1996, p. xii.

¹⁴ Dewey, Melvil "Decimal classification and relative index"; edited by Joan S. Mitchell. — 22nd ed. — New York Forest, 1996, p. 1021

2.15 Universal Decimal Classification

“The Universal Decimal Classification (UDC) is the world's foremost multilingual classification scheme for all fields of knowledge, a sophisticated indexing and retrieval tool. It was adapted by Paul Otlet and Nobel Prizewinner Henri La Fontaine from the Decim Classification of Melvil Dewey, and first published (in French) from 1904 to 1907. Since then it has been extensively revised and developed, and has become a highly flexible and effective system for organizing bibliographic records for all kinds of information in any medium (it is well suited to multi-media information collections). It is structured in such a way that new developments and new fields of knowledge can be readily incorporated. The code itself is independent of any particular language or script (consisting of Arabic numerals and common punctuation marks), and the accompanying class descriptions have appeared in many translated versions. UDC is in worldwide use, and has been published in whole or in part in 23 different languages. The English-language editions are extensively used both in Anglophone countries and those where English is co-official or a working language (the British Isles, Canada, Australia, New Zealand, India, several African countries) and have a significant presence in other cultures as well.”¹⁵

2.15.1 Main numbers

- “0 GENERALITIES
- 1 PHILOSOPHY. PSYCHOLOGY
- 2 RELIGION. THEOLOGY
- 3 SOCIAL SCIENCES
- 4 VACANT
- 5 NATURAL SCIENCES
- 6 TECHNOLOGY
- 7 THE ARTS
- 8 LANGUAGE. LINGUISTICS. LITERATURE
- 9 GEOGRAPHY. BIOGRAPHY. HISTORY”¹⁶

The ten divisions of Main table 5 “Natural Science” is given below:

- “50 Generalities about the pure science
- 51 Mathematics
- 52 Astronomy. Astrophysics. Space research. Geodesy
- 53 Physics
- 54 Chemistry. Crystallography. Mineralogy
- 55 Earth sciences. Geology, meteorology, etc.
- 56 Paleontology
- 57 Biological Sciences in general
- 58 Botany
- 59 Zoology”¹⁷

¹⁵ <http://www.udcc.org/about.htm> 19/12/2005

¹⁶ <http://www.udcc.org/outline/outline.htm> 19/12/2005

The ten sections of division 54 "Chemistry" are give below:-

- 542 Practical laboratory Chemistry. Preparative and experimental Chemistry
- 543 Analytical Chemistry
- 544 Physical Chemistry
- 545 Inorganic Chemistry
- 546 Organic Chemistry
- 547 Crystallography
- 548 Mineralogy. Special study of mineral¹⁸

546.1 Non metals and metalloids in general

546.21 Oxygen

546.3 Metals in general

546.41 Calcium

546.56 Copper

546.62 Aluminum

2.16 Colon Classification

"Colon classification (CC) is a system of library classification developed by S. Ranganathan. It was the first ever faceted (or analytico-synthetic) classification. It is especially used in libraries in India.

Its name "Colon classification" comes from the use of colons to separate facets in class numbers. However, many other classification schemes, some of which are completely unrelated, also use colons and other punctuation in various functions. They should not be confused with Colon classification.

2.16.1 Facets

CC uses five primary categories, or facets to further specify the sorting of a publication, collectively called 'PMEST'.

- , personality
- ; matter or property
- : energy
- . space
- ' time"¹⁹

¹⁷ <http://www.udcc.org/outline/5.htm> 19/12/2005

¹⁸ <http://www.udcc.org/outline/54.htm> 19/12/2005

¹⁹ http://en.wikipedia.org/wiki/Colon_classification 19/12/2005

2.16.2 Theory:

“CC is guided by definite, objectively applicable principles. These have been described Ranganathan’s *Prolegomena to library classification* (1967). The scheme is based on a sou theory. CC 7 being published will conform to Ranganathan’s theory far more than did 1 previous editions.

Dynamic theory is being used in CC7, which has enabled CC7 to become freely facetec analytical-synthetic scheme of classification.

Maximum use of facet analysis has been adopted. There is an excellent provision of phase analysis. There is good provision for mnemonics. CC is the only scheme to provide for seminal mnemonics.

The list of main classes recognized in CC6 is given below:

z	Generalia	LX	Pharmacognosy
1	Universe of subjects	M	Useful arts
2	Library science	Δ	Spiritual experience and mysticist
3	Book science	MZ	Humanities and social sciences
4	Journalism	MZA	Humanities
A	Natural science	N	Fine arts
AZ	Mathematical sciences	NZ	Literature and language
B	Mathematics	O	Literature
BZ	Physical sciences	P	Linguistics
C	Physics	Q	Religion
D	Engineering	R	Philosophy
E	Chemistry	S	Psychology
F	Chemical technology	Σ	Social sciences
G	Biology	T	Education
H	Geology	U	Geography
HX	Mining	V	History
I	Botany	W	Political science
J	Agriculture	X	Economics
K	Zoology	Y	Sociology
KX	Animal husbandry	YX	Social work
L	Medicine	Z	Law

CC is a serial system. Therefore, applied sciences have been placed after fundamen sciences, on which they are dependent. Mysticism and spiritual experience deal with knowled achieved through intuition. Therefore, this subject has been placed at the centre. First, proceed from abstraction to concreteness. After the centre, we move from naturalness artificiality: for instance, physics is less concrete than chemistry. Political science is m artificial than history. Law is considered very artificial. Therefore, it has been placed at the 1 position.”²⁰

²⁰ Krishan Kumar, “Library manual” . – 4th ed. New Delhi : Vikas Publishing House, 1991, p. 256 -258

CHAPTER THREE

Research Methodology

3.1 Research Design

The research design of this study is considered as descriptive / theoretical research.

In general, there are two kind of methods used in designing classification schemes for organization of the universe of subjects. The first method designs the scheme completely on the basis of the actual collections available in the library, like the Library of Congress did. The other method designs it on the basis of the essence of growing universe of subjects. When using the first method, the classification scheme is created after analyzing the collections available in a library; and can only provide an overall picture of universe of subjects in a limited period but not an overall picture of universe of subjects. Therefore, it is unable to accurately reveal the overall situation of the universe of subjects, especially its neglected areas. When using the second method, the classification scheme is created before analyzing the universe of subjects, so it is able to accurately reveal the overall situation of universe of subjects. Even so, so far there has not been a simplified and having more coverage using limited number of notation classification scheme for this previously created type, which is universally accepted throughout the world. Therefore, using the second method of classification, the research has designed a simplified and having more coverage library classification scheme, based mainly of understanding of the systematic structure of universe of subjects, and partly on the library classification of inorganic chemistry of Dewey Decimal Classification, Universal Decimal Classification, and Colon Classification.

3.2 Population

The universe of subject of inorganic field is a large and ever-growing one. It is improper to describe its character. The proper approach is the statistical approach. Statistical calculation helps to study large universes tending to infinity in size. In the Jargon of statistical calculus, the totality of the entries of the universe is denoted by the term 'population'. The universe of subject is considered as the population of the study. Like Common auxiliaries, i.e. Language Table, Variant Table, Area Table, Person Table, Time Table, and Phase Relation; Special auxiliaries and schedule of Inorganic Chemistry are considered as the population of the study.

3.3 Sampling Procedure

Statistical calculation replaces the entire universe, which is too large, by a smaller sample of it. It also takes care to see that the sample is not biased in any way but is a fairly reliable. But this study has not a fairly sampling procedure. The study has chosen purposive or subjective or judgment or non-probability sampling procedure. So this study has selected schedules of inorganic chemistry only.

3.4 Data Collection Procedure

Data of the study has collected from different types of books, magazines, encyclopedias, and websites and based mainly of my understanding of the systematic structure and content analysis of universe of subjects of inorganic chemistry. Some data are also collected from most popular existing classification schemes of inorganic chemistry, and existing related subjects in documentary as well as digital forms.

3.5 Data Analysis Procedure

Since this study is descriptive / theoretical research, so it has tried to compare most popular existing classification schemes such as DDC, UDC, and CC with the newly device system. In this chapter, a comparison of these schemes has been made on the basis of criteria which are set earlier.

CHAPTER FOUR

Octadecimal Coding for Inorganic Substances (A classification scheme)

4.1 Introduction

The word octadecimal is combination of two words "octa" and "decimal". The word "octa" comes from Greek word "okta" which means eight and the word "decimal" means ten. Therefore octadecimal means eighteen. This classification scheme (OC) is based on numbering system and 18 eighteen base numbers i.e. 0 to 9 and A to H. Its base is broader comparatively than the Dewey Decimal Classification (DDC) scheme devised by Melvil Dewey in 1876 uses the numbers 0-9, i.e. ten base numbers under which all the universe of subjects have been accommodated and the Universal Decimal Classification (UDC) also uses ten base numbers, i.e. 0-9. Because "the longer the base, the shorter will be the average number of digits in a class number, or an isolate number. The digits used in a class number need not have cardinal values, since the class number is used only for arrangement and not for counting. Therefore, the digits used in the notational system need not consist only of letters of alphabet or Arabic numerals. It may have mixed notational system also"¹. This classification scheme (OC) is based on octadecimal numbering system, which uses the notations 0-9 and A-H in its main classes, common auxiliaries, and special auxiliaries. OC has used the other notations for other purposes.

4.2 Principles

- i. It is a classification in the strictest sense depending on the analysis of idea context, so that related concepts are brought together, and haphazard arrangements like alphabetical order, evolutionary order etc. is avoided;
- ii. Both coordination and subordination or subordination and super-ordination are placing side by side of those classes, which are most like in subject matter or interest or helpful sequence of subject. It is remembered that these classes are not divisions of one another, but are classes arranged according to their closeness of relationship in subject interest, and are often of equal rank;
- iii. Its divisions and sections are grouped or arranged in helpful sequence by subject specialist who has good knowledge about classification or by classifier who has good knowledge about subject matter;
- iv. Some subjects are related or closed to two subjects in same array, to assign or to allocate the subjects between two related or closed subjects;
- v. Some subjects are related or closed to many subjects in same array, to assign or to allocate the subjects first of all subjects;
- vi. It is an octadecimal classification, constructed on the principle of proceeding from the general to the more particular by the division of the whole human knowledge into 18 main classes, 36 divisions, 5832 sections and so on, each further subdivided octadecimally to the required degree.

¹ Kent, Allen and Lancour, "Harold Encyclopedia of library and information science". - New York: Marcel Dekker, 1971, V. 5, p. 164.

- vii. Each main class represents either a broad discipline or a group of related disciplines. However, it is not true for 0 (Zero) main class Generalities. This class indicates varied subjects.
- vii. It is an aspect classification, in which a phenomenon is classed according to the context discipline in which it is considered.

4.3 Characteristics

- i. It has comparatively least notational systems;
- ii. It has simplified subject relation system to combine / relate subjects and facets;
- iii. It has very simple or easily remembered notation for facet indicator, i.e. L is for language, M is matter, P is for person, T is for time, etc;
- iv. It has more hospitality in chain due to octadecimal fraction and in array due to quite broad base number;
- v. It has least number of digits in every facet, so it will be easy to store in our memory;
- vi. It has provision of infinite extrapolation for increasing the capacity of an array with the aid of empty digit. Roman capital "J" is used as an empty digit.
- vii. It has provision of interpolation for newborn subjects between any two consecutive ordinal numbers with the aid of emptying digit. Roman capitals "X", "Y", and "Z" are used as emptying digits.
- viii. It has very simple shelving or filing order.

4.4 Notational System

OC has used ten Indo-Arabic numerals 0 to 9 and eight Roman capitals A to H to form octadecimal numbering system. It has mixed base, linear, right-handed and octadecimal fraction notation. The octadecimal point in the beginning is omitted.

OC has used the following four species of digits:

10	Indo-Arabic numerals (0...9)
23	Roman capitals (A...Z excluding I, N, O)
2	Punctuation marks (Hyphen "-" and dot ".")
1	Mathematical symbol (Plus sign "+")

Roman capital "J" is used as an empty digit;

Roman capital "K" is used to represent for facet indicator of special auxiliary;

Roman capitals "L, M, P, Q, T, V and W" are used to represent for facet indicator of common auxiliaries;

Roman capitals "R and S" are used to represent for indicator digits of relation of subjects;

Roman capitals "X, Y, Z" are used as an emptying digit.

Roman capital "U" is used to represent for facet indicator of subject device;

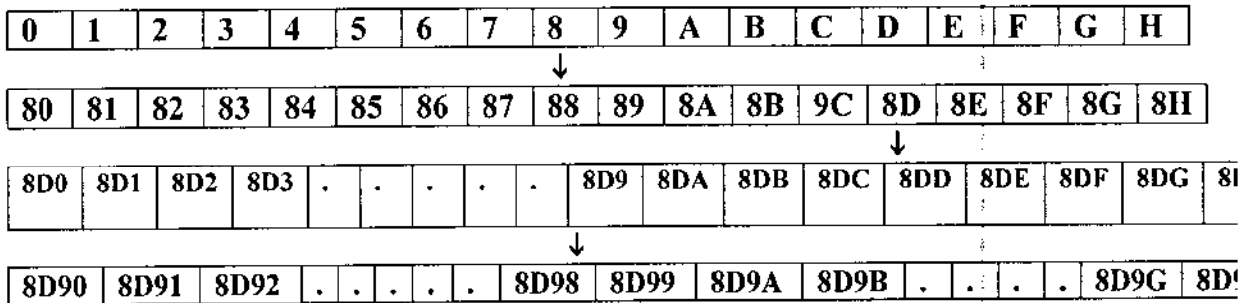
Punctuation marks "-" is used to connect two consecutive numbers to form a range number;

Mathematical symbol "+" is used to connect two nonconsecutive numbers to form a compound number;

Punctuation mark "." is a special type of notation whose use is described in the schedules and common auxiliaries.

4.5 Structure of Octadecimal Numbering System

The numbering system, having eighteen base numbers, is called octadecimal-numbering system. These eighteen symbols are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, & H. and place values increase in the power of 18.



4.6 Extrapolation in an array

An array of class numbers should admit of any number of new coordinate numbers being added at the end of the array is called extrapolation in an array.

The number of ideas to be represented in a notational system is extremely large but the number of distinct digits which can be used by a classificationist even in a scheme employing mixed notation is rather small. As a result, it has to be used to provide for infinite extrapolation for hospitality in an array to represent in one level of equal rank. It is a method used for increasing the capacity of an array with the help of an empty digit. It becomes possible to add unlimited numbers to represent coordinate ideas. An empty digit is a digit with ordinal value but without semantic value. Roman capital "J" used as an empty digit.

Let us consider the following sequence, made up octadecimal numbering system:

0 1 2 3 4 5 6 7 8 9 A B C D E F G H J0 J1 J2 J3 J4 J5 J6 J7 J8 J9 JA JB JC JE ... JH JJ0 JJ1 JJ2 ... JJH and so on.

Let us assume that J is an empty digit. In that case it would have ordinal value but no semantic value. In other words, J by itself has no meaning. But J0 is meaningful. Similarly, other numbers beginning with a single, double J or triple J and so on are meaningful numbers.

Let us assume that J0 represents a class coordinate with the classes represented by digits from 0 to 9 and A to H. Similarly, we may assume that numbers J1, J2, J3, J4 and so on are all postulated to represent classes coordinate with classes represented by digits from 0 to 9 and A to H.

On the basis of above assumption, we can say that the following numbers from a single array (all these numbers represent coordinate classes):

0 1 2 3 4 5 6 7 8 9 A B C D E F G H J0 J1 J2 J3 ... and so on. Here, we have lengthened the 0 to 9 and A to H array with the help of an empty digit J. Thus we have succeeded in increasing the capacity of an array with the help of an empty digit. It may be added that number J0, J2 ... and so on are considered as if each is a single digit.

4.7 Interpolation in an array

An array of class numbers should admit of the interpolation of any number of new coordinate numbers being added at any point in the array is called Interpolation in an array.

The universe of subjects has become dynamic. In order to meet, effectively and productively, the onslaught of the ever-growing universe of subjects, a scheme for library classification needs to

developed so that it can conveniently accommodate newborn subjects between two consecutive ordinal numbers at any point in the array.

The emptying digit is a digit which has its usual ordinal value as well as semantic value, "having the power to deprive the preceding rich digit of its power of representing an idea".

With the help of an emptying digit a new number between any two existing class numbers in an array can be interpolated.

An emptying digit deprives the preceding digit of its semantic value in a digit group, but retains the ordinal value allotted to it. It helps in interpolation between two consecutive ordinal numbers where there is no gap available between them. Roman capitals "X", "Y", and "Z" can be employed as emptying digits. Suppose we wish to interpolate three subjects at the coordinate level between two consecutive main classes 6 "The arts" and 7 "Education" using emptying digits X, Y, and Z.

6	The arts
6X	Library science
6Y	Book science
6Z	Journalism
7	Education

Thus we have succeeded in interpolating new subjects in an array with the help of emptying digits. It may be added that number 6, 6X, 6Y, 6Z and 7 are considered as if each is a single digit.

4.8 Shelving or Filing Order

The filing order of OC is based on a progression from general to particular, so the main class generalities and common auxiliaries which are general by definition, come first. Next, two or more simple subjects linked by a plus "+" or hyphen "-" have a more general meaning than a simple subject so they file before it. In other words, the symbols plus "+" and hyphen "-" extend rather than restrict the meaning of a number, so compound numbers containing them file before the simple number itself. First in the filing order comes the number followed by "+"...; secondly, the number followed by "-"...; thirdly, the simple number, for example E5+EC comes before E5, similarly E5-EC comes before E5. The simple number linked by notation dot "." is filed after simple number. After simple subjects, compound subjects of those simple subjects come. Complex subjects are more particular than simple subjects by definition, so they file in the last.

Examples

0L6E5	Nepali language
0PL6E5	Nepali speaking people
0PW76	Nepalese
0TFC	Twenty first century in AD
0V35	Handbooks
0W76	Nepal
E8+EA	Inorganic and Organic chemistry
E8-EA	Inorganic, Physical and Organic chemistry
E8	Inorganic chemistry
E80K8	Ores of Inorganic chemistry
E80L6E5	Documents in Nepali about Inorganic chemistry
E80PW76	Inorganic chemistry for Nepalese people
E80TFC	Inorganic chemistry of 21 st century in AD
E80V35	Handbooks of Inorganic chemistry
E80W76	Inorganic substances in Nepal
E81	Alkali metals

E813	Sodium
E813.F3	Sodium chloride
E8F3	Chlorine
E8R1A	The general relation between Inorganic and Organic chemistry
E8R7A	Difference between Inorganic and Organic chemistry
E8RDA	Inorganic chemistry is bias for Organic chemistry
E8S7A	The application of Physical chemistry to the study of Inorganic chemistry
E8SD9	The influence of Physical chemistry on Inorganic chemistry
E8UF	The inorganic elements technology

4.9 Citation Order

Citation order means the order in which the facets or elements (building blocks) : combined when a compound number is built. If the classification is used pre-coordinately organize books on the shelf in a library or create a systematic display on an OPAC, a combination order is pre-determined to ensure consistency.

The citation order and filing order are generally reverse to each other. Therefore, the citation order for the OC is:

U S R W V T Q P M L

For example: - The class number of "Bibliography of politics of Nepal in 20th century" A0W76V2TF6, i.e. A is main class which represents "Political science" W76 is a facet which represents Geographical area, Nepal, V2 is a facet which represents Bibliography, and TF6 is a facet which represents 20th century. Zero before W is added according to the rule of OC, i.e. C zero is added before first auxiliary. All facets have combined with the help of citation order.

When using the linking signs (+ and -) to build a compound class number, cite numbers in ascending order, e.g.

7-D	Social sciences
8+A	Geography and Political science
A+D	Political science and Economics
E7+EC	Chemistry and biology

"Any systematic arrangement, which breaks the whole collection into groups, is certainly better than unsystematic arrangement. Some arrangements are better than others. We should choose that arrangement which meets our requirements in the best possible manner. Choice should thus take into consideration the purposes for which books are used by the users. Library classification scheme must be purpose-oriented"²

The octadecimal classification scheme is a purpose-oriented library classification scheme. The whole schedule of OC is subject arrangement i.e. classification by subjects. But other type arrangement is also possible by using this scheme, i.e. to give greater priority to any facet in compound number by citing it first.

The other types of classification are as follows: -

² Krishan Kumar, "Library manual" . - 4th rev. ed. New Delhi : Vikas Publishing House, 1991, p. 234

i. Linguistic Classification

Linguistic classification is the arrangement by language throughout. Thus books are separated first by language and then are arranged by subject within the language. This principle also comes into use when an author's works are separated into editions and translation.

Examples:

0L619UE8	English language – Inorganic chemistry
0L6DDUE8	Maithali language – Inorganic chemistry
0L6E5UE8	Nepali language – Inorganic chemistry

ii. Chronological Classification

Chronological Classification is a supplementary arrangement of material in a suborder according to time or period in which the subject is considered. Thus books are separated first by period or time and then are arranged by subject.

Examples:

0TF6UF	20 th century- Technology
0TFCUF	21 st century- Technology

iii. Classification by form

Classification by form is the arrangement by type of publication. Thus books are separated first by form and then are arranged by subject. It is used in all systems where encyclopedias, directories, dictionaries, and periodicals are picked out from the other books by their subjects and put in a separate section or department.

Examples:

0V31UE	Encyclopedias – Science
0V33UE	Dictionaries – Science
0V51UE	Periodicals – Science

iv. Classification by place

Classification by place is the arrangement by place. Thus books are separated by the place with which it is concerned and then are arranged by subject.

Examples:

0W76U9	Nepal – History
0W78U9	Maldives – History

The library collections can be arranged by different ways with the help of citation order. Thus the variation of citation order satisfies the purpose-oriented library classification.

4.10 Parts of the scheme

The scheme consists of schedules, auxiliaries, combination of numbers, relation of subjects and index.

i. Schedules

There are two kinds of schedules:

- a) Main schedule
- b) Fused subject schedule

ii. Auxiliaries

There are two kinds of auxiliaries:

- a) Common or General auxiliaries
- b) Special auxiliaries

iii. Combination of numbers

There are two kinds of combination of OC numbers:

- a) Combination of nonconsecutive number
- b) Combination of consecutive number

iv. Relation of subjects

There are six kinds of relationship between two and more subjects:

- a) General relation
- b) Comparison / difference
- c) Bias
- d) Fused
- e) Tool
- f) Influence

v. Subject Device

vi. Index

i. a. Main schedule:

The universe of subjects has been organized into three broader groups and divided into eighteen main classes.

1-6	Humanities
7-D	Social Sciences
E-H	Science and Technology

- 0 Generalities
- 1 Philosophy.
- 2 Psychology
- 3 Religions. Theology
- 4 Language. Linguistics
- 5 Literature
- 6 The arts. Music. Sports
- 7 Education
- 8 Geography
- 9 History
- A Political Sciences
- B Social Sciences
- C Law. Jurisprudence
- D Economics
- E Pure Sciences
- F Technology. Engineering. Computer Science
- G Medical Sciences
- H Agricultural Sciences. Animal husbandry

The above order of main classes is based on helpful sequence of subjects, e Language (4) is related to Literature (5). So, they are placed next to each other. Similar History and Political Science are placed adjacent to each other because their close relationsh The above main classes indicate that each main class represents either a broad discipline o group of related disciplines. However, this is not true for 0 classes. This class includes vari subjects. Each main class has eighteen divisions. The eighteen divisions of main class E “Pl Science” are given below:

E0	General Sciences
E1	Fundamental Mathematics
E2	Applied Mathematics
E3	Astronomy
E4	Mathematical Physics
E5	Physics
E6	[Vacant]
E7	General Chemistry
E8	Inorganic Chemistry
E9	Physical Chemistry
EA	Organic Chemistry
EB	Environmental Science
EC	Biology
ED	Zoology
EE	Botany
EF	Microbiology
EG	Paleontology
EH	Earth Science. Geology

The coordination and subordination of mathematics, chemistry and biology are plac side by side where as in DDC & UDC only biology are placed side by side. Each division l eighteen sections and so on. The eighteen sections of division E8 “Inorganic Chemistry” given below:

E80	Zero groups elements. Noble gases. Inert gases
E81	IA groups elements. Alkali metals
E82	IIA groups elements. Alkaline earth metals.
E83	IIIB groups elements. Lanthanide Series. Actinide Series
E84	IVB groups elements
E85	VB groups elements
E86	VIB groups elements
E87	VIIIB groups elements
E88	VIIIB groups elements
E89	IB groups elements. Coinage metals. Currency metals
E8A	IIB groups elements
E8B	IIIA groups elements
E8C	IVA groups elements
E8D	VA groups elements
E8E	VIA groups elements
E8F	VIIA groups elements. Halogens
E8G	Compound radicals
E8H	[vacant]

The above groups of Inorganic elements are based on Modern Periodic Table. Each section has eighteen subsections and so on.

i. b. The fused subject schedule

“Interdisciplinary research has led to the emergence of new ideas and new subjects of interdisciplinary character. In the initial stage, interdisciplinary subjects may be placed with one of the primary basic subject. But later, a classificationist may deem it necessary to postulate a new primary basic subject. This is thus formed through fusion. Astrophysics, astrochemistry, astrobiology, biomechanics, biochemistry, biophysics, geophysics, geochemistry, econometrics, socio-cybernetics etc. are the examples of fused subject”³

In this schedule, two or more subjects of main schedule are fused together in such a way that each of them loses its individuality, gives a new simple subject. These subjects are simple (not complex) subjects taken from fused relation. The subject whose class number is the earliest class number is cited as the first subject. In other words, the subjects are arranged in ascending order of the class number.

The indicator digits for fused subject relation at zero level is S0, at first level is S1, second level is S2, at third level is S3, at fourth level is S4 and at fifth level is S5.

If there is no common digit between two or more OC numbers is known as zero level relation. If there is one common digit between two or more OC numbers is known as first level relation. If there is two common digits between two or more OC numbers is known as second level relation. If there is three common digits between two or more OC numbers is known as third level relation. If there is four common digits between two or more OC numbers is known as fourth level relation. If there is five common digits between two or more OC numbers is known as fifth level relation.

For example, the class number for “Biochemistry” would be E7S1C. Here, biochemistry is neither biology nor chemistry, but it is a new subject achieved by the fusion of “Biology” and “Chemistry”. The class number of biochemistry “E7S1C” is taken from fused relation. Divisions and sections are also possible. In this fused subject schedule, the possible divisions and sections of fused subjects will be assigned. The schedule will not be listed in one place as if treated as simple subjects. OC has not filed the fused subjects with simple subjects is a limitation because fused subjects are not complex subjects.

Examples:

4S0B	Socio-linguistics
8S0A	Geopolitics
E3S15	Astrophysics
E3S17	Astro-chemistry
E3S1C	Astrobiology
E5S1H	Geophysics
E7S1C0V2	Bibliography of biochemistry
E7S1H	Geochemistry
ECS0GUF	Biomedical Engineering

³ Krishan Kumar “Theory of classification” . – 4th rev. ed. – New Delhi : Vikas, 1988, p. 28.

ii. Auxiliaries

The auxiliaries help in eliminating repetition in the various schedules they group certain recurring and general subordinate concepts such as language table, area table, time table, person table, variant table, etc. The table of auxiliaries serves the mnemonic function as well. The OC uses two kinds of auxiliaries: general or common and special. The general or common auxiliary can be used in all the schedules of the scheme whereas special auxiliaries can be used only in specific schedules or their parts. The notation Zero "0" is added before first auxiliaries or while combining the two or more auxiliaries in a simple subject.

ii. a. Common auxiliaries

The common auxiliaries are applicable throughout the various main schedules, for subject schedules. The various tables of common auxiliaries and their connecting symbols are given in the following table:

Common Auxiliaries	Facet Indicator
Language Table	L
Matter Table	M
Person Table	P
Quality Table	Q
Time Table	T
Variant Table	V
Area Table	W

Examples:

A0W76 Politics of Nepal

A0W76V2 Bibliography of Politics of Nepal

A0W76V2V2TF6 Bibliography of bibliography of Politics of Nepal of twenty century in AD

ii. b. Special auxiliaries

The special auxiliaries, unlike the common auxiliaries are not listed in one place and do not have such extensive applicability. They occur at various places in the schedules, to express concepts that are recurrent, but in a more limited subject range. The facet indicator for special auxiliary is "K". The notation zero "0" is added before it at first time only.

Examples:

E80K8 Ores of inorganic elements

E8840K6 Physical properties of iron elements

iii. Combination of numbers

It serves to unit two or more numbers to indicate that the work contains two or more subjects. The OC has provided two kinds of combination of OC numbers for subjects by using two connecting (linking) signs "+" (plus) and "-" (hyphen).

These two kinds of combination of OC numbers are

- Combination of nonconsecutive numbers
- Combination of consecutive numbers

iv. Relation of subjects

One of the modes of formation of subjects in the universe of subjects is called loose assemblage. Loose assemblage mode of formation is concerned with mutual relation and represented by relation of subjects in library classification.

OC has provided the following six kinds of relationship between two or more subjects:

- a. General relation
- b. Comparison / difference
- c. Bias
- d. Fused
- e. Tool
- f. Influence

v. Subject Device

A full schedule developed at one place is repeated by analogy at other places or some classes of materials are given the same development as the whole classification. The Roman capitals "U" is the indicator digit of subjects. It is used to combine schedule to schedule, and is known as subject device. It is not a common auxiliary so don't prescribe notation zero "0" before it.

Examples:

- GUF Medical technology (not G0UF)
- HUF Agricultural technology (not H0UF)

vi. Index

Index entries of common auxiliaries and schedules are arranged alphabetically word by word in the last part of the chapter four.

LANGUAGE TABLE⁴

Roman capital "L" is the facet indicator for Language. It is used here in the same sense as is commonly understood. It is used in main class Language & Linguistics, literature, a linguistic form of a document. The notation Zero "0" is added before first auxiliaries only when combining the two or more auxiliaries in a simple number or other auxiliaries

Examples:

0L6DA	Maithali language
0L6DB	Bhojapuri language
0L6E5	Nepali language
0L71	Chinese language
E50L619	Physics in English language
E80L6E5	Documents in Nepali about Inorganic chemistry

Common Auxiliaries

L2	Niger-Kordofanian (Niger-Congo) languages
L3	Nilo-Saharan languages
L4	Afro-Asiatic. (Hamito-Semitic) languages
L5	Dravidian languages
L6	Indo-European languages
L7	Sino-Tibetan languages
L8	Tai-Kadai languages
L9	Austronesian languages
LA	Austro-Asiatic languages
LB	Australian languages
LC	Trans-New Guinea languages
LD	Sepik Ramu languages
LE	Oto-Manguean languages
LF	Tupi languages
LG	Areal grouping languages
LH	Artificial languages

⁴ http://en.wikipedia.org/wiki/Language_families_and_languages

L5	Dravidian languages
L52	Southern Dravidian
L521	Tamil
L522	Kannada
L523	Malayalam
L524	Tulu
L525	Toda
L526	Kota
L528	Koraga
L52A	Badaga
L52B	Kurumba
L52C	Irula
L52D	Kodava Thakk
L53	South Central Dravidian
L531	Telugu language
L534	Gondi language
L536	Konda
L537	Manda
L539	Pengo
L53B	Kui
L53D	Kuvi
L55	Central Dravidian
L551	Kolami
L553	Naiki
L555	Parji
L557	Gadaba
L57	Northern Dravidian
L571	Brahui
L573	Kurukh

L6 Indo-European languages

L6	Greek languages
L61-2	Germanic (Teutonic) languages
L61 languages	West Germanic languages
L62 languages	North Germanic languages
L63	Italic languages
L64	Romance languages
L65	Celtic languages
L66	Baltic languages
L67	Slavic languages
L68	Albanian languages
L69	Armenian languages
L6A	Tocharian languages
L6B	Anatolian languages

L6C-H	Indo Iranian languages
L6C-E	Indo-Aryan languages
L6F	Iranian languages
L6G	Dardic languages
L6H	Nuristani languages

L60	Greek languages
L61	West Germanic languages
L610	Yola
L611	German
L612	Texas German
L613	Yiddish
L614	Wymysojer
L615	Dutch
L616	Afrikaans
L617	Limburgish
L618	Frisian
L619	English
L61A	Scots
L61B	Sol 'ring
L61C	Platteleutsch
L61D	Crimean Gothic
L61E	Vandalic
L61F	Burgundian.
L61G	Lombardic
L62	North Germanic languages
L620	West(Insular) Nordic
L621	New Norwegian
L622	Icelandic
L623	Faeroese
L624	Norn
L625	Danish
L626	Norwegian
L627	Scanian
L628	Swedish
L63	Italic languages
L631	Latin
L632	Umbrian
L64	Romance languages
L640	Acadian (Cajun, Cajun French)
L641	French
L642	Spanish
L643	Italian
L644	Catalan
L645	Aragonese
L646	Asturian (Bable)
L647	Occitan (Languedoc, Provençal)
L648	Ladino

L649	Portuguese	L67G	Bulgarian
L64A	Calo Romani	L67H1	Old Church Slavonic
L64B	Romanian (Rumanian)	L67H2	Serbo Croat (Serbo Croatian)
L64C	Valencian	L6C-E	Indo- Aryan languages
L64D	Galician	L6C1	Sanskrit
L64E	Romansch (Rhaeto- Romance, Rhaeto- Romanic)	L6C2	Pali
L64F	Friulian. Ladin	L6C3	Prakrit
L64G	Moldavian	L6C4	Bhili
L65	Celtic languages	L6C5	Domari
L651	Breton	L6C6	Gujarati
L652	Irish(Irish Gaelic)	L6C7	Marathi
L653	Celtiberian	L6C8	Khandesi
L654	Scots Gaelic (Scottish Gaelic)	L6C9	Panjabi
L655	Manx	L6CA	Rajasthani (Marwari, Mewari)
L656	Welsh	L6CB	Romany
L657	Cornish	L6CC	Hindi
L658	Galatian	L6CD	Urdu
L66	Baltic languages	L6CE	Bundli
L661	Galindan	L6CF	Kanauji
L662	Old Prussian (prussia)	L6CG	Awadhi
L663	Sudovian	L6C0	Bagheli
L664	Curonian	L6C1	Chhattisgarhi
L665	Latvian	L6C2	Dhanwar
L666	Lithuanian	L6C3	Fijian Hindustani
L667	Somogitian	L6D4	Assamese
L668	Selonian	L6D5	Bengali
L669	Semigallian	L6D6	Bishnupriya
L67	Slavic languages	L6D7	Chakma
L670	Belarusian	L6D8	Kamrapi
L671	Ukrainian	L6D9	Sylheti
L672	Russian	L6DA	Maithali
L673	Rusyn (Ruthenian)	L6DB	Bhojapuri
L674	Sorbian (Lusatian, wendish)	L6DC	Magadhi
L675	Polish	L6DD	Bhatri
L676	Kashubian	L6DE	Oriya
L677	Polabian	L6DF	Kumauni
L678	Czech	L6DG	Adi
L679	Knaanic (Judeo Slavic)	L6DH	Manipuri
L67A	Slovak	L6E0	Naga
L67B	Slovenian	L6E1	Khashi
L67C	Crotian	L6E5	Nepali
L67D	Bosnian	L6E7	Palpi
L67E	Serbian	L6E8	Garhwali
L67F	Macedonian	L6E9	Tehri
		L6EB	Bilaspuri
		L6EC	Landha
		L6ED	Sindhi
		L6EE	Sinhalese. Sinhala

L6EF	Maldivian	L721	Mandarian(Putonghua)
L6EG	Veddah	L722	Cantonese (Yue)
L6F	Iranian languages	L73-5	Tibeto- Burman Languages
L6F0	Persian. Pahavi	L730	Newari
L6F1	Avestan	L731	Chepeng
L6F2	Pashto	L732	Magar
L6F3	Dari language of Afghanistan	L733	Kham
L6F4	Dari language of Zoroastrians	L734	Jerung
L6F5	Tajik	L735	Limbo (Limbu)
L6F6	Ossetian	L736	Gurung
L6F7	Kurdish	L737	Rai. Kiranti
L6F8	Balochi	L738	Tamang
L6F9	Talysh	L739	Thakali
L6FA	Tay	L73A	Thami
L6FB	Yagnobi	L73B	Sherpa
L6G	Dardic languages	L73C	Tibetan
L6G1	Kashmiri	L73D	Ladakhi
L6G2	Shina	L73E	Lepcha
L6G3	Ningalami	L73F	Tshangla
L6G4	Pashayi	L73G	Tshangla (Sharchopkha) Tshanglato
L6G5	Phalura	L741	Dzonykha (Bhotia, Bhutani, Lhake)
L6G6	Shumashti	L742	Sikhimese
L6G7	Dameli	L743	Balti
L6G8	Khowar	L744	Chingpaw (Jingpho, Kachin)
L6G9	Domaaki	L745	Bodo
L6GA	Kohistani	L746	Goro
L6GB	Gawar- Bati	L747	Karen
L6GC	Kalasha	L748	Kayaha
L6H	Nuristani languages	L749	Chin
L6H1	Ashkun	L74A	Naga
L6H2	Kamviri	L74B	Burmese
L6H3	Prasuni	L74C	Rakhine (Arakanese)
L6H4	Kati	L74D	Akha
L6H5	Tregami	L74E	Lisu
L6H6	Waigali (Kalasha-Ala)	L74F	Yi
L7	Sino- Tibetan languages	L74G	Meithei
L71	Chinese languages	L751	Nungish
L72	Sinitic languages	L752	Tujia
		L76	Thai (Tai) languages

VARIANT TABLE

Roman capital "V" is the facet indicator of common auxiliaries. It is argued that the include not only form divisions but also aspects of the study of the subject which represent various forms (such as periodical, collections of writings, table and so on) and modes of treatment (such as theory, technique, study and teaching, history and so on). These forms of presentation and modes of treatment taken collectively have been called Variant Table. The notation may be applied wherever they are considered appropriate.

The notation Zero "0" is added before first auxiliaries only while combining the two more auxiliaries in a simple number or other auxiliaries.

Examples:

30V1	Philosophy of religions
40V9	History of Linguistics
E0V5	Serial publications of Natural science
E80V2	Bibliography of Inorganic chemistry
G0V7E	Competition books of Medical science

Common auxiliaries

V1	Philosophy and theory
V2	Bibliography
V3	Reference works
V31	Encyclopedias
V33	Dictionaries
V35	Handbooks
V37	Manuals. Guidebooks
V39	Tables
V4	Books in general
V5	Serial publications
V51	Periodicals. Journals. Magazines
V55	Yearbooks
V6	Non-serial publications
V61	Pamphlets
V65	Theses. Dissertations
V67	Abstracts
V7	Education. Research. Study
V7A	Documents connected with training, practical instructions
V7E	Documents connected with competitions, tests, examinations
V9	History. Documents connected with historical form
VA	Biography

AREA TABLE

Roman capital "W" is the facet indicator of common auxiliaries' area. It is used here the sense as is commonly understood. It occurs in every subject forming local description, or the local history of any subject. It is limited by the surface of the earth. It takes the form of geographical areas like subcontinents, countries and districts.

The notation Zero "0" is added before first auxiliaries only while combining the two more auxiliaries in a simple number or other auxiliaries.

Special auxiliaries:

WK1	Geo-sphere
WK11	Forest
WK13	Island
WK15	Valley
WK17	Mountain
WK19	Capital city
WK1C	City
WK1E	Town
WK1G	Village
WK2	Hydrosphere
WK21	Sea
WK23	River
WK25	Lake
WK27	Pond
WK29	Well
WK3	Zones
WK31	Limiting zones. Boundaries
WK33	Military zones
WK4	Orientation
WK41	East
WK42	South-east
WK43	South
WK44	South-west
WK45	West
WK46	North-west
WK47	North
WK48	North-east
WK4B	Middle
WK4D	Inside
WK4F	Outside
WK5	Ecological division
WK51	Hill region
WK52	Plain region
WK53	Mountain region

Examples:

0W2H K1C	Cities of Denmark
0W74K23	River of India
0W76K17	Mountain of Nepal

Common auxiliaries:

W1	World.
W2	Northern Europe
W3	Western Europe
W4	Southern Europe
W6	Western Asia
W7	South Central Asia
W8	South East Asia
W9	East Asia
WA	Northern Africa
WB	Western Africa
WC	Middle & Southern Africa
WD	Eastern Africa
WE	Oceania & Australia
WF	South America
WG	Caribbean
WH	North & Central America

W11	Antarctica continent
W15	Oceans
W151	Indian
W153	Atlantic
W155	Pacific
W158	Antarctic
W15A	Arctic
W2	Northern Europe
W21	Iceland
W23	Ireland
W25	United Kingdom. Great Britain
W28	Norway
W29	Sweden

W2B	Finland	W65	Saudi Arabia
W2D	Estonia	W66	Kuwait
W2E	Latvia	W67	Syria
W2G	Lithuania	W68	Turkey
W2H	Denmark	W69	Armenia
W3	Western Europe	W6A	Israel
W32	France	W6B	Jordan
W34	Germany	W6C	Bahrain
W36	The Netherlands. Holland	W6D	Cyprus
W38	Belgium	W6E	Azerbaijan
W3A	Switzerland	W6F	Georgia
W3C	Austria	W6G	Lebanon
W3D	Luxembourg	W7	South Central Asia
W3F	Monaca	W71	Bangladesh
W3G	Liechtenstein	W72	Bhutan
W4	Southern Europe	W73	Pakistan
W42	Italy	W74	India
W43	Slovenia	W76	Nepal
W44	Croatia	W761	Mechi
W46	Bosnia-Herzegovina	W7611	Jhapa
W47	Yugoslavia	W7612	Ilam
W48	Greece	W7613	Panchthar
W49	Macedonia	W7614	Taplejung
W4A	Malta	W762	Koshi
W4C	Spain	W7621	Sunsari
W4D	San Marino	W7622	Morang
W4E	Portugal	W7623	Dhankuta
W4F	Andorra	W7624	Bhojpur
W4G	Albania	W7625	Tehrathun
W4H	Vatican City	W7626	Sankhuwasabha
W5	Eastern Europe	W763	Sagarmatha
W51	Moldova	W7631	Saptari
W52	Hungary	W7632	Siraha
W54	Bulgaria	W7633	Udaypur
W55	Romania	W7634	Khotang
W57	Ukraine	W7635	Okhaldhunga
W58	Poland	W7636	Solukhumbu
W5A	Belarus	W764	Janakpur
W5B	Russia	W7641	Dhanusha
W5D	Slovakia	W7642	Mahottari
W5E	Czech Republic	W7643	Sarlahi
W6	Western Asia	W7644	Sindhulis
W60	United Arab Emirates	W7645	Ramechhap
W61	Iraq	W7646	Dolakaha
W62	Yemen	W765	Narayani
W63	Oman	W7651	Bara
W64	Qatar	W7652	Parsa

W7653	Makawanpur	W76C5	Dolpa
W7654	Chitwan	W76D	Seti
W7655	Rautahat	W76D1	Kailali
W766	Bagmati	W76D2	Doti
W7661	Kavre	W76D3	Bajhang
W7662	Sindhupalchowk	W76D4	Bajura
W7663	Bhaktapur	W76D5	Achham
W7664	Lalitpur	W76E	Mahakali
W7666	Kathmandu	W76E1	Kanchanpur
W7668	Nuwakot	W76E2	Dadeldhura
W7669	Rasuwa	W76E3	Baitadi
W766A	Dhading	W76E4	Darchula
W767	Gandaki	W77	Sri Lanka. Ceylon
W7671	Gorkha	W78	Maldives
W7672	Tanahu	W7A	Afghanistan
W7673	Lamjung	W7B	Iran. Persia
W7674	Kaski	W7D	Turkmenistan
W7675	Manang	W7E	Uzbekistan
W7676	Syangja	W7F	Kazakhstan
W768	Dhaulagiri	W7G	Kyrgyzstan
W7681	Parbat	W7H	Tajikistan
W7682	Baglung	W8	Southeast Asia
W7683	Myagdi	W81	Myanmar
W7684	Mustang	W82	Thailand. Siam
W769	Lumbani	W84	Cambodia
W7691	Nawalparasi	W85	Laos
W7692	Rupandehi	W87	Vietnam
W7693	Kapilbastu	W88	Malaysia. Malaya
W7694	Arghakhanchi	W89	Philippines
W7695	Palpa	W8B	Brunei
W7696	Gulmi	W8C	Indonesia
W76A	Rapti	W8D	Singapore
W76A1	Dang	W9	East Asia
W76A2	Pyuthan	W91	China
W76A3	Rolpa	W95	Mongolia
W76A4	Salyan	W96	Taiwan. Formosa
W76A5	Rukum	W97-8	Korea
W76B	Bheri	W97	South Korea
W76B1	Banke	W98	North Korea
W76B2	Bardiya	W8B	Japan
W76B3	Surkhet	WA	North Africa
W76B4	Jajarkot	WA1	Morocco
W76B5	Dailekh	WA2	Algeria
W76C	Karnali	WA4	Tunisia
W76C1	Kalikot	WA5	Libya
W76C2	Jumla	WA7	Egypt. United Arab Republi
W76C3	Mugu	WA9	Sudan
W76C4	Humla	WB	Western Africa

WB1	Liberia	WDF	Seychelles
WB2	Sierra Leone	WDG	Madagascar. Malagasy
WB4	Guinea	WE	Oceania & Australia
WB5	Guinea-Bissau	WE1	Australia
WB7	Gambia	WE2	Fiji
WB8	Senegal	WE4	Kiribati
WB9	Mauritania	WE5	Nauru
WBA	Mali	WE6	Vanuatu
WBB	Burkina Faso	WE8	New Zealand
WBC	Ghana. Gold Coast	WE9	Solomon Islands
WBD	Benin	WEB	Papua New Guinea
WBE	Nigeria	WEC	Tonga
WBF	Niger	WEE	Palau
WBG	Cape Verde	WEF	Western Samoa
WBH	Cote d'Ivoire	WEG	Tuvalu
WC	Middle & Southern Africa	WEH	Samoa
WC1	Chad		
WC2	Central Africa Republic		
WC4	Democratic Republic of the Congo (Zaire)	WF	South America
WC5	Republic of the Congo Congo (Zaire)	WF1	Venezuela
WC7	Cameroon	WF2	Guyana
WC8	Angola	WF3	Suriname
WC9	Namibia	WF4	French Guiana
WCB	South Africa	WF6	Brazil
WCC	Lesotho	WF8	Colombia
WCD	Botswana	WF9	Ecuador
WCE	Swaziland	WFA	Peru
WCF	Sao Tome and Principe	WFC	Bolivia
WCG	Gabon	WFD	Paraguay
WCH	Equatorial Guinea	WFE	Argentina
WD	Eastern Africa	WFG	Uruguay
WD0	Eritrea	WFH	Chile
WD1	Ethiopia. Abyssinia	WG	Caribbean
WD2	Djibouti	WG0	Antigua and Barbuda
WD3	Somalia	WG2	Bahamas
WD4	Kenya	WG3	Barbados
WD5	Uganda	WG5	Cuba
WD6	Tanzania	WG6	Dominica
WD7	Rwanda	WG8	Dominican Republic
WD8	Zambia	WG9	Grenada
WD9	Zimbabwe. Rhodesia	WGB	Haiti
WDA	Mozambique	WGC	Jamaica
WDB	Malawi	WGD	Netherlands
WDC	Mauritius	WGE	Trinidad and Tobago
WDD	Comoros	WGF	Saint Kitts-Nevis
WDE	Burundi	WGG	Saint Vincent. The Grenadines
		WGH	Saint Lucia

WH	North & Central America
WH1	Canada
WH3	United States
WH5	Mexico
WH7	Guatemala
WH8	Belize
WH9	Honduras
WHA	Nicaragua
WHB	Costa Rica
WHC	Panama
WHD	El Salvador

PERSON TABLE

Roman capital "P" is the facet indicator for common auxiliaries Person Table. T notation Zero "0" is added before first auxiliaries only while combining the two or more auxiliaries in a simple subject.

Special auxiliaries:

OPK1	Male persons. Men
OPK11	Boys
OPK2	Female persons. Women
OPK22	Girls

Examples:

OP40K22	Girl friends
OP42K1	Father
OP42K2	Mother
OPL619	English speaking people
OPL71	Chinese speaking people
OPL730	Newari speaking people
OPW76	Nepalese
OPW76K2	Nepali women

Common auxiliaries:

P1	Persons as agents, doers
P2	Persons as targets groups, clients, users
P3	Persons according to age groups
P32	Children
P34	Youngs
P36	Adults
P38	Old persons
P4	Persons according to kinship, affinity, relationship
P40	Friends
P41	Great grand parents, grand parents
P42	Parents
P43	Step parents
P44	Siblings (brothers & sisters)
P45	Step siblings
P46	Children
P47	Step children
P48	Grand children, Great grand children
P49	Uncle & aunt
P4A	Nephew & niece
P4B	Maternal great grand parents, grand parents
P4C	Maternal uncle & aunt
P4D	Parents in law
P4E	Brothers & sisters in law

P4F	Children in law
P4G	God parents & foster parents
P4H	Adopted children
P5	Persons according to marriage
P51	Married persons
P53	Unmarried persons
P55	Widowed persons
P57	Divorced persons
P6	Persons according to sexual orientation
P61	Heterosexuals
P64	Bisexuals
P67	Homosexuals
P671	Lesbians
P672	Gays
P7	Persons according to education
PC	Persons according to social classes
PC1	Upper-class persons
PC3	Middle-class persons
PC5	Lower-class persons
PD	Persons according to income level
PD1	High income persons
PD3	Middle income persons
PD5	Low income persons
PD7	No income persons
PW	Persons according to nationality
PL	Persons according to racial

TIME TABLE

Roman capital "T" is the facet indicator for time. It is used here in the same sense as commonly understood. Time occurs in every subject forming a local description or local history of any subject. It is unidirectional. It takes the form of usual times, like millennium, century, period, year etc. The notation Zero "0" is added before first auxiliaries only while combining the two or more auxiliaries in a simple subject.

The sign "-" (hyphen) connects the first and last of a series of consecutive OC numbers to form a range number denoting a broad subject, or range of concepts. So, the connecting sign hyphen is used for period of time.

If the numbers on each side of the hyphen begin with the same digits, the second number can be abbreviated by omitting the digit common to both. This omitting rule is used only when the second number must be of one digit. In other words, the number of digit after hyphen must be only one digit rest all must be common.

So in the example, TFA0-8, the digits TFA are omitted after the hyphen. But bear in mind that it conceals part of a number [TFA8], and might lead to a searcher missing relevant materials.

Arrangement of the Time Table:

The first row (horizontal) and first column (vertical) are arranged for OC numbers equivalent to AD dates. And second row and second column are arranged for OC numbers equivalent to BC dates. The rest all rows and columns are arranged for the dates of BC as well as AD.

Required number = Its corresponding row (of BC or AD) + Its corresponding column (of BC or AD)
For example:

1st century AD = Its corresponding row of AD + Its corresponding column of AD
= 9+0
=90

Therefore, the equivalent number of 1st century AD in OC number is T90. Here, T is a facet indicator for Time.

21st century AD = Its corresponding row of AD + Its corresponding column of AD
= F+C
=FC

Therefore, the equivalent number of 21st century AD in OC number is TFC.

The date 1995 AD = Its corresponding row of AD + Its corresponding column of AD
= FB+5
=FB5

Therefore, the equivalent number of 1995AD in OC number is TFB5.

Special auxiliaries:

TK9-E	Seasons	Examples:	
TK9	Spring season	0T25	Twenty first century B
TKA	Summer season	0TC0	Tenth century in AD
TKB	Autumn season	0TFA0-8	From 1972 to 1980
TKC	Winter season	0TFA0-H	From 1972 to 1989
TKD	Raining season	0TFC	Twenty first century A
TKE	Dry season	0TFC4.C.0B	11, December 2004 A
		0TFC40K9	Spring season of 2004
		0TFC5.4.12	21, April 2005 AD

Common Auxiliaries:

Century Table

AD		0	6	C
	BC	H	B	5
9	8	1st	2nd	3rd
A	7	4th	5th	6th
B	6	7th	8th	9th
C	5	10th	11th	12th
D	4	13th	14th	15th
E	3	16th	17th	18th
F	2	19th	20th	21st
G	1	22nd	23rd	24th
H	0	25th	26th	

Time Table 1

Year Table

AD		0	I	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
	BC	H	G	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1
90	8H		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
91	8G	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
92	8F	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
93	8E	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
94	8D	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
95	8C	90	91	92	93	94	95	96	97	98	99							
96	8B	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116
97	8A	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134
98	89	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152
99	88	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170
9A	87	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188
9B	86	190	191	192	193	194	195	196	197	198	199							
9C	85	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216
9D	84	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234
9E	83	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252
9F	82	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
9G	81	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288
9H	80	290	291	292	293	294	295	296	297	298	299							
A0	7H	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316
A1	7G	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334
A2	7F	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352
A3	7E	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370
A4	7D	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388
A5	7C	390	391	392	393	394	395	396	397	398	399							
A6	7B	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416
A7	7A	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434
A8	79	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452
A9	78	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470
AA	77	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488
AB	76	490	491	492	493	494	495	496	497	498	499							

Time Table 2

AD		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H
	BC	H	G	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
AC	75	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517
AD	74	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535
AE	73	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553
AE	72	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571
AG	71	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589
AH	70	590	591	592	593	594	595	596	597	598	599								
B0	6H	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617
B1	6G	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635
B2	6F	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653
B3	6E	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671
B4	6D	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689
B5	6C	690	691	692	693	694	695	696	697	698	699								
B6	6B	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717
B7	6A	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735
B8	69	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753
B9	68	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771
BA	67	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789
BB	66	790	791	792	793	794	795	796	797	798	799								
BC	65	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817
BD	64	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835
BE	63	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853
BF	62	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871
BG	61	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889
BH	60	890	891	892	893	894	895	896	897	898	899								
C0	5H	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917
C1	5G	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935
C2	5F	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953
C3	5E	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971
C4	5D	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989
C5	5C	990	991	992	993	994	995	996	997	998	999								

Time Table 3

AD		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
	BC	H	G	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1
C6	5B	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016
C7	5A	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034
C8	59	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052
C9	58	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070
CA	57	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088
CB	56	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099							
CC	55	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116
CD	54	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134
CE	53	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152
CF	52	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170
CG	51	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188
CH	50	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199							
D0	4H	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216
D1	4G	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234
D2	4F	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252
D3	4E	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270
D4	4D	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288
D5	4C	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299							
D6	4B	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316
D7	4A	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334
D8	49	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352
D9	48	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370
DA	47	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388
DB	46	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399							
DC	45	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416
DD	44	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434
DE	43	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452
DF	42	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470
DG	41	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488
DH	40	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499							

Time Table 4

AD		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
	BC	H	G	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1
E0	3H	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516
E1	3G	1518	1519	1520	1521	1522	1523	1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534
E2	3F	1536	1537	1538	1539	1540	1541	1542	1543	1544	1545	1546	1547	1548	1549	1550	1551	1552
E3	3E	1554	1555	1556	1557	1558	1559	1560	1561	1562	1563	1564	1565	1566	1567	1568	1569	1570
E4	3D	1572	1573	1574	1575	1576	1577	1578	1579	1580	1581	1582	1583	1584	1585	1586	1587	1588
E5	3C	1590	1591	1592	1593	1594	1595	1596	1597	1598	1599							
E6	3B	1600	1601	1602	1603	1604	1605	1606	1607	1608	1609	1610	1611	1612	1613	1614	1615	1616
E7	3A	1618	1619	1620	1621	1622	1623	1624	1625	1626	1627	1628	1629	1630	1631	1632	1633	1634
E8	49	1636	1637	1638	1639	1640	1641	1642	1643	1644	1645	1646	1647	1648	1649	1650	1651	1652
E9	38	1654	1655	1656	1657	1658	1659	1660	1661	1662	1663	1664	1665	1666	1667	1668	1669	1670
EA	37	1672	1673	1674	1675	1676	1677	1678	1679	1680	1681	1682	1683	1684	1685	1686	1687	1688
EB	36	1690	1691	1692	1693	1694	1695	1696	1697	1698	1699							
EC	35	1700	1701	1702	1703	1704	1705	1706	1707	1708	1709	1710	1711	1712	1713	1714	1715	1716
ED	34	1718	1719	1720	1721	1722	1723	1724	1725	1726	1727	1728	1729	1730	1731	1732	1733	1734
EE	33	1736	1737	1738	1739	1740	1741	1742	1743	1744	1745	1746	1747	1748	1749	1750	1751	1752
EF	32	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770
EG	31	1772	1773	1774	1775	1776	1777	1778	1779	1780	1781	1782	1783	1784	1785	1786	1787	1788
EH	30	1790	1791	1792	1793	1794	1795	1796	1797	1798	1799							
F0	2H	1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816
F1	2G	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834
F2	2F	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852
F3	2E	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870
F4	2D	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888
F5	2C	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899							
F6	2B	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
F7	2A	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
F8	29	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
F9	28	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
FA	27	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
FB	26	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999							

Time Table 5

AD		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H
	BC	H	G	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
FC	25	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
FD	24	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FE	23	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
FF	22	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071
FG	21	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089
FH	20	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099								
G0	1H	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117

G1	1G	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135
G2	1F	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153
G3	1E	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171
G4	1D	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189
G5	1C	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199								
G6	1B	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217
G7	1A	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235
G8	19	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253
G9	18	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271
GA	17	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289
GB	16	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299								
GC	15	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317
GD	14	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335
GE	13	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353
GF	12	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371
GG	11	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389
GH	10	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399								
H0	0H	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417
H1	0G	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435
H2	0F	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453
H3	0E	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471
H4	0D	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489
H5	0C	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499								

Time Table 6

Combination of numbers

It serves to unit two or more numbers to indicate that the work contains two or more subjects. The OC has provided two kinds of combination of OC numbers for subjects by using two connecting (linking) signs "+" (plus) and "-" (hyphen). When using the connecting (linking) signs to build a compound class number, cite the numbers in ascending order.

These two kinds of combination of OC numbers are

1. Combination of nonconsecutive numbers
2. Combination of consecutive numbers

1. Combination of nonconsecutive numbers:

The sign "+" (plus) connects two or more separated (non-consecutive) OC numbers, denote a compound subject for which no single number exists.

Examples:

7+A	Education and Political science
8+A	Geography and Political science
9+A+D	History, Political science and Economics
9+D	History and Economics

Here, 8+A suggests that both Geography and Political science are dealt with.

2. Combination of consecutive numbers:

The sign "-" (hyphen) connects the first and last of a series of consecutive OC numbers to form a range number denoting a broad subject, or range of concepts.

Examples:

0TFA0-8	A period of time from 1972 to 1980
0TFA0-H	A period of time from 1972 to 1989
1-6	Humanities
7-D	Social sciences
E-H	Science and technology
E812-5	The more important alkali metals (not E812-E815)

If the numbers on each side of the hyphen begin with the same digits, the second number can be abbreviated by omitting the digit common to both. This omitting rule is used only when the second number must be of one digit. In other words, the number after hyphen must be only one digit rest all must be common.

So in the example, E812-5 above, the digits E81 are omitted after the hyphen. Bear in mind that this conceals part of a number [E815], and might lead to a search for missing relevant materials.

Relation of Subjects

“A variety of relations are possible between any two components of a subject. The relations can be formalized into a set of relations leading to a typology of relations. A typology of relations is based on the deductions drawn by classificationist, specialist philosophers and so on. It may be emphasized that the search for a typology of relations is essential for developing a scheme for library classification. Different specialists have recognized different types of relations between the components of a subject, or the modes of subject formation in the universe of subjects”⁵

One of the modes of formation of subjects in the universe of subjects is called loose assemblage. Loose assemblage mode of formation is concerned with mutual relation and is represented by relation of subjects in library classification. OC has provided six kinds of relationship between two or more subjects, these are general, comparison / difference, bias, fused, tool and influence. OC has provided six levels of each relation these are zero level, first level, second level, third level, fourth level, and fifth level. If there is no common digit between two or more OC numbers is known as zero level relation. If there is one common digit between two or more OC numbers is known as first level relation. If there is two common digits between two or more OC numbers is known as second level relation. If there is three common digits between two or more OC numbers is known as third level relation. If there is four common digits between two or more OC numbers is known as fourth level relation. If there is five common digits between two or more OC numbers is known as fifth level relation.

The Roman capitals “R” and “S” are used to indicate relationships between two or more subjects. The notation dot “.” is used between second and third numbers of subjects in the case of relationship among three subjects.

OC has provided the following six kinds of relationship between two or more subjects:

1. General relation
2. Comparison / difference
3. Bias
4. Fused
5. Tool
6. Influence

⁵ Krishan Kumar “Theory of classification” . – 4th rev. ed. – New Delhi : Vikas, 1988, p. 203.

Table of indicators digits in different levels

Kinds of Relations	Zero level	First level	Second level	Third level	Fourth level	Fifth level
General	R0	R1	R2	R3	R4	R5
Comparison / difference	R6	R7	R8	R9	RA	RB
Bias	RC	RD	RE	RF	RG	RH
Fused	S0	S1	S2	S3	S4	S5
Influence	S6	S7	S8	S9	SA	SB
Tool	SC	SD	SE	SF	SG	SH

1. General Relation

The general relation is 'a subject relation of more or less comprehensive or no descriptive kind between the two or more subjects.' And that is not merely any one of the other relationship listed above. The subject whose class number is the earlier class number is cited as the first subject. In other words, the subjects are arranged in ascending order of the class number. The indicators digits for general relation at zero level is R0, at first level is R1, at second level is R2, at third level is R3, at fourth level is R4 and at fifth level is R5.

The class number for "physics in relation to chemistry" would be E5R17. Here, the class number of physics is E5, and the class number of chemistry is E7. The common digit between two class number is E only, i.e. one digit or first level general relation. Physics is treated as first subject because the class number for physics has less ordinal value than for chemistry.

Examples:

8R0A	General relation between Geography and Political science
E813R34	General relation between Sodium and Potassium
E837R48	General relation between Uranium and Plutonium
EDR1E	General Relation between botany and zoology

2. Comparison / Difference Relation

In this subject relation, comparison / difference are made between two or more subjects. The subject whose class number is the earlier class number is cited as the first subject. In other words, the subjects are arranged in ascending order of the class number. The indicator digits for comparison / difference relation at zero level is R6, at first level is R7, at second level is R8, at third level is R9, at fourth level is RA and at fifth level is RB.

The class number for "Difference between Physics and Chemistry" would be E5R7. Here, the class number of physics is E5, and the class number of chemistry is E7. The common digit between two class number is E only, i.e. one digit or first level difference relation. Physics is treated as first subject because the class number for physics has less ordinal value than for chemistry.

Examples:

E5R77.C	Difference between Physics, Chemistry and Biology
E813R94	Difference between Sodium and Potassium
E836R97	Difference between rare earth and radioactive elements
E894R95	Comparison between two coinage metals copper and silver
EDR7E	Comparison between botany and zoology
EER6H	Difference between Botany and Agriculture

3. Bias Relation

In this subject relation, the opinion, or feeling of one subject strongly favors other subject. In other words, one subject is written especially for the use of other subject.

The indicator digits for bias relation at zero level is RC, at first level is RD, at second level is RE, at third level is RF, at fourth level is RG and at fifth level is RH.

The class number for "Psychology for teachers" would be 2RC7. Here, psychology has been made first subject, because this is a book on psychology, written especially for the use of teachers. If such books are not distinguished from ordinary books, then these will get mixed up. In case of a teacher requests for a book on psychology, a book on psychology written for teachers can be brought to his notice.

Examples:

2RCG	Psychology for Doctors
E2RD5	Statistics for Physicists
E8RDA	Inorganic chemistry biased to Organic chemistry
E9RD8	Physical chemistry biased to Inorganic chemistry
EERDD	Botany biased to Zoology

4. Fused Subject Relation

In this subject relation, two subjects are fused together in such a way that each of them loses its individuality, and gives a new simple subject not a complex subject. The subject whose class number is the earlier class number is cited as the first subject. In other words, the subjects are arranged in ascending order of the class number. The indicator digits for fused subject relation at zero level is S0, at first level is S1, at second level is S2, at third level is S3, at fourth level is S4 and at fifth level is S5.

The class number for "Biochemistry" would be E7S1C. Here biochemistry is neither biology nor chemistry, but it is a new subject achieved by the fusion of Biology and Chemistry. And the class number of Chemistry is E7, and the class number of Biology is EC. The common digit between two class numbers is E only, i.e. one digit or first level general relation. Chemistry is treated as first subject because the class number for Chemistry has less ordinal value than Biology. OC has not filed the fused subjects with simple subjects is its limitation because fused subjects are not complex subjects.

Examples:

4S0B	Socio-linguistics
8S0A	Geopolitics
E3S15	Astrophysics

E3S17	Astro-chemistry
E3S1C	Astrobiology
E5S1H	Geophysics
E7S1C0V2	Bibliography of biochemistry
E7S1H	Geochemistry

5. Tool Relation

In this subject relation, one subject is applied for the study or development of another subject. The subject under study is treated as the first subject and the subject as a tool considered as the second subject. The indicator digits for tool subject relation at zero level is S at first level is SD, at second level is SE, at third level is SF, at fourth level is SG and at fifth level is SH.

The class number for "Application of Mathematics to Physics" would be E5SD1. Physics being the subjects of study has been placed as the first subject. Mathematics is a tool here; therefore, it has been treated as the second subject.

Examples:

E8S79 The application of Physical chemistry to the study of Inorganic chemistry

EAS78 The application of Inorganic chemistry to the study of Organic chemistry

6. Influence Relation

In this subject relation, the effects of one subject on another are explained. The subjects being affected are considered as the first subject. The second subject is called effecting subject. The indicator digits for influence relation at zero level is S6, at first level is S7, at second level is S8, at third level is S9, at fourth level is SA and at fifth level is SB.

The class number for "Influence of Geography on Political science" would be AS68. Here Political science is being affected, therefore, it has been treated as the first subject, and Geography is regarded as the second subject.

Examples:

E8SD9 The influence of Physical chemistry on Inorganic chemistry;

EASD9 The influence of Physical chemistry on Organic chemistry

Schedule

0	Generalities
1	Philosophy.
2	Psychology
3	Religions. Theology
4	Language. Linguistics
5	Literature
6	The arts. Music. Sports
7	Education
8	Geography
9	History
A	Political Sciences
B	Social Sciences
C	Law. Jurisprudence
D	Economics
E	Pure Sciences

E Pure Sciences

Summery

E0	General Sciences
E1	Fundamental Mathematics
E2	Applied Mathematics
E3	Astronomy
E4	Mathematical Physics
E5	Physics
E7	General Chemistry
E8	Inorganic Chemistry
E9	Physical Chemistry
EA	Organic Chemistry
EB	Environmental Science
EC	Biology
ED	Zoology
EE	Botany
EF	Microbiology
EG	Paleontology
EH	Earth Science. Geology

E8 Inorganic Chemistry

Special auxiliaries:

E80K2	States of matter
E80K22	solid state
E80K24	crystalline state
E80K26	liquid state
E80K28	gaseous state
E80K3	Isotopes
E80K4	Ionizations
E80K5	Atomic weight. Molecular weight
E80K6	Physical properties
E80K7	Chemical properties
E80K8	Ores
E80K9	Preparation
E80K92	Laboratory Preparation
E80K95	General Preparation
E80KB	Uses

Examples:

E813.F3	Sodium Chloride (NaCl)
E824.G24	Calcium Carbonate (CaCO ₃)
E811.E2	Hydrogen Oxide. water (H ₂ O)
E813.F1	Sodium Hydride (NaH)
E811.E20K22	Hydrogen Oxide in solid state (H ₂ O)
E811.E20K26	Hydrogen Oxide in liquid state (H ₂ O)
E811.E20K28	Hydrogen Oxide in gaseous state (H ₂ O)
E824.G1C	Calcium Bicarbonate {Ca ₂ (HCO ₃)}
E811.G29	Hydrogen Sulphate. Sulphuric acid. (H ₂ SO ₄)

The notation dot "." between two elements represents the element is in compound. In OC notation dot "." is a special kinds of notation.

E80	Zero groups elements. Noble gases. Inert gases
E81	IA groups elements. Alkali metals
E82	IIA groups elements. Alkaline earth metals.
E83	IIIB groups elements. Lanthanide Series. Actinide Series
E84	IVB groups elements
E85	VB groups elements
E86	VIB groups elements
E87	VIIB groups elements
E88	VIIIB groups elements
E89	IB groups elements. Coinage metals. Currency metals
E8A	IIB groups elements
E8B	IIIA groups elements
E8C	IVA groups elements
E8D	VA groups elements
E8E	VIA groups elements
E8F	VIIA groups elements. Halogens
E8G	Compound radicals

E80	Zero groups elements. Noble gases. Inert gases	E836F	Thulium (Tm)
E801	Helium (He)	E836G	Ytterbium (Yb)
E802	Neon (Ne)	E836H	Lutetium (Lu)
E803	Argon (Ar)	E837	Actinide series. Radioactive elements.
E804	Krypton (Kr)	E8373	Actinium (Ac)
E805	Xenon (Xe)	E8374	Thorium (Th)
E806	Radon (Rn)	E8375	Protactinium (Pa)
E807	Unuoctium (Uno)	E8376	Uranium (U)
E81	IA groups elements. Alkali metals	E8377	Neptunium (Np)
E811	Hydrogen (H) See also E8F1	E8378	Plutonium (Pu)
E812	Lithium (Li)	E8379	Americium (Am)
E813	Sodium (Na)	E837A	Curium (Cm)
E814	Potassium (K)	E837B	Berkelium (Bk)
E815	Rubidium (Rb)	E837C	Californium (Cf)
E816	Cesium (Cs)	E837D	Einsteinium (Es)
E817	Francium (Fr)	E837E	Fermium (Fm)
E818	Ammonium (NH ₄)	E837F	Mendelevium (Md)
E82	IIA groups elements. Alkaline earth metals.	E837G	Nobelium (No)
E822	Beryllium (Be)	E837H	Lawrencium (Lr)
E823	Magnesium (Mg)'	E84	IVB groups elements
E824	Calcium (Ca)	E844	Titanium (Ti)
E825	Strontium (Sr)	E845	Zirconium (Zr)
E826	Barium (Ba)	E846	Hafnium (Hf)
E827	Radium (Ra)	E847	Rutherfordium (Rf)
E83	IIIB groups elements. Lanthanide Series. Actinide Series	E85	VB groups elements
E834	Scandium (Sc)	E854	Vanadium (V)
E835	Yttrium (Y)	E855	Niobium (Nb)
E836	Lanthanide series. Rare earth elements	E856	Tantalum (Ta)
E8363	Lanthanum (La)	E857	Dubnium (Db)
E8364	Cerium (Ce)	E86	VIB groups elements
E8365	Praseodymium (Pr)	E864	Chromium (Cr)
E8366	Neodymium (Nd)	E865	Molybdenum (Mo)
E8367	Promethium (Pm)	E866	Tungsten (W)
E8368	Samarium (Sm)	E867	Seaborgium (Sg)
E8369	Europium (Eu)	E87	VIIB groups elements
E836A	Gadolinium (Gd)	E874	Manganese (Mn)
E836B	Terbium (Tb)	E8742	Manganous. Manganese (II)
E836C	Dysprosium (Dy)	E8743	Manganic. Manganese (III)
E836D	Holmium (Ho)	E875	Technetium (Tc)
E836E	Erbium (Er)	E876	Rhenium (Re)
		E877	Bohrium (Bh)
		E88	VIIIB groups elements
		E884	Iron (Fe)
		E8842	Ferrous. Iron (II)
		E8843	Ferric (III)

E885	Ruthenium (Ru)	E8D5	Antimony (Sb)
E886	Osmium (Os)	E8D6	Bismuth (Bi)
E887	Hassium (Hs)	E8D7	Ununpentium (Uup)
E889	Cobalt (Co)	E8E	VIA groups elements
E88A	Rhodium (Rh)	E8E2	Oxygen (O)
E88B	Iridium (Ir)	E8E3	Sulpher (S)
E88C	Meitherium (Mt)	E8E4	Selenium (Se)
E88E	Nickel (Ni)	E8E5	Tellurium (Te)
E88F	Palladium (Pd)	E8E6	Polonium (Po)
E88G	Platinum (Pt)	E8E7	Ununhe (Uuh)
E88H	Darmstadtium (Ds)	E8F	VIIA groups elements.
E89	IB groups elements. Coinage metals. Currency metals	Halogens	
E894	Copper (Cu)	E8F1	Hydride (H) (only for to form compound with E81 Groups to E8D groups)
E8941	Cuprous. Copper (I)		see also E811
E8942	Cupric. Copper (II)	E8F2	Fluorine (F)
E895	Silver (Ag)	E8F3	Chlorine (Cl)
E896	Gold (Au)	E8F4	Bromide (Br)
E897	Roentgenium (Rg)	E8F5	Iodine (I)
E8A	IIB groups elements	E8F6	Astatine (At)
E8A4	Zink (Zn)	E8F7	Ununseptium (Uus)
E8A5	Cadmium (Cd)		
E8A6	Mercury (Hg)	E8G	Compound radicals
E8A61	Mercurous. Mercury (I)	E8G1	Monovalent compound radical
E8A62	Mercuric. Mercury (II)	E8G11	Hydroxide (OH)
E8A7	Ununbium (Uub)	E8G12	Hypochlorite (ClO)
E8B	IIIA groups elements	E8G13	Chlorate (ClO ₃)
E8B2	Boron (B)	E8G14	Hypobromite (BrO)
E8B3	Aluminum (Al)	E8G15	Bicarbonate (HCO ₃)
E8B4	Gallium (Ga)	E8G16	Hypoiodite (IO)
E8B5	Indium (In)	E8G17	Iodate (IO ₃)
E8B6	Thallium (Tl)	E8G18	Bisulphite (HSO ₃)
E8B7	Ununtrium (Uut)	E8G19	Bisulphate (HSO ₄)
E8C	IVA groups elements	E8G1A	Nitrite (NO ₂)
E8C2	Carbon (C)	E8G1B	Nitrate (NO ₃)
E8C3	Silicon (Si)	E8G1D	Acetate (CH ₃ COO)
E8C4	Germanium (Ge)	E8G1E	Cyanide (CN)
E8C5	Tin (Sn)	E8G1F	Permanganate (MnO ₄)
E8C52	Stannous. Tin (II)	E8G1G	Meta-aluminate (AlO ₂)
E8C53	Stannic. Tin (III)		
E8C6	Lead (Pb)	E8G2	Bivalent compound radicals
E8C62	Plumbous. Lead (II)	E8G22	Peroxide (O ₂)
E8C64	Plumbic. Lead (IV)	E8G24	Carbonate (CO ₃)
E8C7	Ununquadium (Uuq)	E8G25	Chromate (CrO ₄)
E8D	VA groups elements	E8G26	Dichromate (Cr ₂ O ₇)
E8D2	Nitrogen (N)	E8G28	Sulphite (SO ₃)
E8D3	Phosphorus (P)	E8G29	Sulphate (SO ₄)
E8D4	Arsenic (As)		

E8G2A	Zincate (ZnO_2)	EB	Environmental Science
E8G2B	Silicate (SiO_3)	EC	Biology
E8G2C	Stannate (SnO_3)	ED	Zoology
E8G2D	Biphosphate (HPO_3)	EE	Botany
E8G2F	Manganate (MnO_4)	EF	Microbiology
E8G3	Tervalent compound radicals	EG	Paleontology
E8G34	Arsenite (AsO_3)	EH	Earth Science. Geology
E8G35	Arsenate (AsO_4)	F	Technology. Engineering.
E8G36	Ferricyanide $\{\text{Fe}(\text{CN})_6\}$		Computer Science
E8G3A	Borate (BO_3)	G	Medical Sciences
E8G3D	Phosphate (PO_4)	H	Agricultural Sciences.
E8G4	Tetravalent compound radicals		Animal husbandry
E8G46	Ferrocyanide $\{\text{Fe}(\text{CN})_6\}$		
E9	Physical Chemistry		
EA	Organic Chemistry		

INDEX

- Abstracts V67
- Abyssinia WD1
- Acadian L640
- Acetate E8G1D
- Achham W76D5
- Actinide series E837
- Actinium E8373
- Adi L6DG
- Adopted children P4H
- Adults P36
- Affinity P4
- Afghanistan W7A
- Afrikaans language L616
- Afro-Asiatic languages L4
- Agricultural Sciences H
- Akha L74D
- Albania W4G
- Albanian languages L68
- Algeria WA2
- Alkali metals E81
- Alkaline earth metals E82
- Alkaline earth metals E82
- Aluminum E8B3
- Americium E8379
- Ammonium E818
- Anatolian languages L6B
- Andorra W4F
- Angola WC8
- Antarctic W158
- Antarctica continent W11
- Antigua and Barbuda WG0
- Antimony E8D5
- Applied Mathematics E2
- Aragonese L645
- Arakanese L74C
- Arctic W15A
- Areal grouping languages LG
- Argentina WFE
- Arghakhanchi W7694
- Argon E803
- Armenia W69
- Armenian languages L69
- Arsenate E8G35
- Arsenic E8D4
- Arsenite E8G34
- Artificial languages LH
- Arts 6
- Aschelminthes ED9
- Ashkun L6H1
- Assamese L6D4
- Astatine E8F6
- Astrobiology E3s1C
- Astro-chemistry E3S17
- Astronomy E3
- Astrophysics E3S15
- Asturian L646
- Atlantic W153
- Atomic weight E80K5
- Aunt P49
- Australia WE
- Australia WE1
- Australian languages LB
- Austria W3C
- Austro-Asiatic languages LA
- Austronesian languages L9
- Autumn season TKB
- Avestan L6F1
- Awadhi L6CG
- Azerbaijan W6E
- Bable L646
- Badaga language L52A
- Bagheli L6C0
- Baglung W7682
- Bagmati W766
- Bahamas WG2
- Bahrain W6C
- Baitadi W76E3
- Bajhang W76D3
- Bajura W76D4
- Balochi L6F8
- Balti L743
- Baltic languages L66
- Bangladesh W71
- Banke W76B1
- Bara W7651
- Barbados WG3
- Bardiya W76B2
- Barium E826
- Belarus W5A
- Belarusian L670
- Belgium W38
- Belize WH8

Bengali L6D5
 Benin WBD
 Berkelium E837B
 Beryllium E822
 Bhaktapur W7663
 Bhatri L6DD
 Bheri W76B
 Bhili L6C4
 Bhojapuri L6DB
 Bhojpur W7624
 Bhotia L741
 Bhutan W72
 Bhutani L741
 Bibliography V2
 Bicarbonate E8G15
 Bilaspuri L6EB
 Biochemistry E7S1C
 Biography VA
 Biology EC
 Biphosphate E8G2D
 Bisexuals P64
 Bishnupriya L6D6
 Bismuth E8D6
 Bisulphate E8G19
 Bisulphite E8G18
 Bivalent compound radicals E8G2
 Bodo L745
 Bohrium E877
 Bolivia WFC
 Books V4
 Borate E8G3A
 Boron E8B2
 Bosnia-Herzegovina W46
 Bosnian L67D
 Botany EE
 Botswana WCD
 Boundaries W0K31
 Boys P0K11
 Brahui language L571
 Brazil WF6
 Breton L651
 Bromide E8F4
 Brothers in law P4E
 Brothers P44
 Brunei W8B
 Bulgaria W54
 Bulgarian L67G
 Bundli L6CE
 Burgundian L61F

Burkina Faso WBB
 Burmese L74B
 Cadmium E8A5
 Caesium E816
 Cajun French L640
 Cajun L640
 Calcium Carbonate E824.G24
 Calcium E824
 Californium E837C
 Calo Romani L64A
 Cambodia W84
 Cameroon WC7
 Canada WH1
 Cantonese L722
 Cape Verde WBG
 Capital city W0K19
 Carbon E8C2
 Carbonate E8G24
 Caribbean WG
 Catalan L644
 Celtiberian L653
 Celtic languages L65
 Central Africa Republic WC2
 Central America WH
 Central Dravidian language L55
 Cerium E8364
 Ceylon W77
 Chad WC1
 Chakma L6D7
 Chemical properties E80K7
 Chemistry E7
 Chemistry, general E7
 Chemistry, Physical E9
 Chepang L731
 Chhattisgarhi L6C1
 Children in law P4F
 Children P32
 Children P46
 Chile WFH
 Chin L749
 China W91
 Chinese language L71
 Chingpaw L744
 Chitwan W7654
 Chlorate E8G13
 Chlorine E8F3
 Chromate E8G25
 Chromium E864
 City W0K1C

Clients P2
 Cobalt E889
 Coinage metals E89
 Colombia WF8
 Competitions V7E
 Compound radicals E8G
 Congo WC4
 Congo WC5
 Copper (I) E8941
 Copper (II) E8942
 Copper E894
 Cornish L657
 Costa Rica WHB
 Cote d'Ivoire WBH
 Crimean Gothic language L61D
 Croatia W44
 Croatian L67C
 Cuba WG5
 Cupric E8942
 Cuprous E8941
 Curium E837A
 Curonian L664
 Currency metals E89
 Cyanide E8G1E
 Cyprus W6D
 Cystalline state E80K24
 Czech L678
 Czech Republic W5E
 Dadeldhura W76E2
 Dailekh W76B5
 Dameli L6G7
 Dang W76A1
 Danish L625
 Darchula W76E4
 Dardic languages L6G
 Dardic languages L6G
 Dari languages L6F3-4
 Darmstadtium E88H
 Denmark W2H
 Dhading W766A
 Dhankuta W7623
 Dhanusha W7641
 Dhanwar L6C2
 Dhaulagiri W768
 Dichromate E8G26
 Dictionaries V33
 Dissertations V65
 Divorced persons P57
 Djibouti WD2
 Doers P1
 Dolakaha W7646
 Dolpa W76C5
 Domaaki L6G9
 Domari L6C5
 Dominica WG6
 Dominican Republic WG8
 Doti W76D2
 Dravidian language, South Central L53
 Dravidian languages L5
 Dry season TKE
 Dubnium E857
 Dutch language L615
 Dysprosium E836C
 Dzonykha L741
 Earth Science EH
 East Asia W9
 East WK41
 Eastern Africa WD
 Eastern Europe W5
 Ecological division WK5
 Economics D
 Ecuador WF9
 Education 7
 Education V7
 Egypt WA7
 Einsteinium E837D
 El Salvador WHD
 Elements First A groups E81
 Elements First B groups E89
 Elements fourth A groups E8E
 Elements fourth B groups E86
 Elements eighth B groups E88
 Elements fifth A groups E8D
 Elements fifth B groups E85
 Elements, Second A groups E82
 Elements, Second B groups E8A
 Elements, seventh A groups E8F
 Elements, third A groups E8B
 Elements, third B groups E83
 Encyclopedias V31
 English language L619
 Enteropneusta EDG1
 Environmental Science EB
 Equatorial Guinea WCH
 Erbium E836E
 Eritrea WD0
 Estonia W2D
 Ethiopia WD1

Europium E8369
 Examinations V7E
 Faeroese L623
 Father P42K1
 Women PK2
 Fermium E837E
 Ferric (III) E8843
 Ferricyanide E8G36
 Ferrocyanide E8G46
 Ferrous E8842
 Fiji WE2
 Fijian Hindustani L6C3
 Finland W2B
 Fluorine E8F2
 Forest W0K11
 Formosa W96
 Foster parents P4G
 France W32
 Francium E817
 French Guiana WF4
 French L641
 Friends P40
 Frisian language L618
 Friulian L64F
 Fundamental Mathematics E1
 Gabon WCG
 Gadaba language L557
 Gadolinium E836A
 Galatian L658
 Galician L64D
 Galindan L661
 Gallium E8B4
 Gambia WB7
 Gandaki W767
 Garhwali L6E8
 Gaseous state E80K28
 Gawar- Bati L6GB
 Gays P672
 Generalities 0
 Geography 8
 Geology EH
 Georgia W6F
 Geo-sphere WK1
 German language L611
 Germanic languages L61-2
 Germanium E8C4
 Germany W34
 Ghana WBC
 Girl friends P40K22
 Girls PK22
 God parents P4G
 Gold Coast WBC
 Gold E896
 Gondi language L534
 Gorkha W7671
 Goro L746
 Grand children P48
 Great grand children P48
 Grand parents P41
 Great Britain W25
 Great grand parents P41
 Greece W48
 Greek language L60
 Greek languages L60
 Grenada WG9
 Grenadines, the WGG
 Guatemala WH7
 Guidebooks V37
 Guinea WB4
 Guinea-Bissau WB5
 Gujarati L6C6
 Gulmi W7696
 Gurung L736
 Guyana WF2
 Hafnium E846
 Haiti WGB
 Halogens E8F
 Hamito-Semitic languages L4
 Handbooks V35
 Hassium E887
 Helium E801
 Heterosexuals P61
 High income persons PD1
 Hill region WK51
 Hindi L6CC
 Historical form V9
 History 9
 Holland W36
 Holmium E836D
 Homosexuals P67
 Honduras WH9
 Humanities 1-6
 Humla W76C4
 Hungary W52
 Hydride E8F1
 Hydrogen E811
 Hydrogen Oxide E811.E2
 Hydrosphere W0K2

Hydroxide E8G11
 Hypobromite E8G14
 Hypochlorite E8G12
 Hypiodite E8G16
 Iceland W21
 Icelandic L622
 Ilam W7612
 India W74
 Indian W151
 Indium E8B5
 Indo Iranian languages L6C-H
 Indo-Aryan languages L6C-E
 Indo-European languages L6
 Indonesia W8C
 Inert gases E80
 Inorganic Chemistry E8
 Inside WK4D
 Instructions practical V7A
 Iodate E8G17
 Iodine E8F5
 Ionization of compounds E80K4
 Iran W7B
 Iranian languages L6F
 Iranian languages L6F
 Iraq W61
 Ireland W23
 Iridium E88B
 Irish Gaelic L652
 Irish L652
 Iron (II) E8842
 Iron E884
 Irula language L52C
 Island W0K13
 Isotopes E8K3
 Israel W6A
 Italian L643
 Italic languages L63
 Italic languages L63
 Italy W42
 Jajarkot W76B4
 Jamaica WGC
 Janakpur W764
 Japan W8B
 Jerung L734
 Jhapa W7611
 Jingpho L744
 Jordan W6B
 Journals V51
 Judeo Slavic L679
 Jumla W76C2
 Jurisprudence C
 Kachin L744
 Kailali W76D1
 Kalasha L6GC
 Kalasha-Ala L6H6
 Kalikot W76C1
 Kamrapi L6D8
 Kamviri L6H2
 Kanauji L6CF
 Kanchanpur W76E1
 Kannada language L522
 Kapilbastu W7693
 Karen L747
 Karnali W76C
 Kashmiri L6G1
 Kashubian L676
 Kaski W7674
 Kathmandu W7666
 Kati L6H4
 Kavre W7661
 Kayaha L748
 Kazakhstan W7F
 Kenya WD4
 Kham L733
 Khandesi L6C8
 Khashi L6E1
 Khotang W7634
 Khowar L6G8
 Kinship P4
 Kiranti L737
 Kiribati WE4
 Knaanic L679
 Kodava Thakk language L52D
 Kohistani L6GA
 Kolami language L551
 Konda language L536
 Koraga language L528
 Korea W97-8
 Koshi W762
 Kota language L526
 Krypton E804
 Kui language L53B
 Kumauni L6DF
 Kurdish L6F7
 Kurukh language L573
 Kurumba language L52B
 Kuvi language L53D
 Kuwait W66

Kyrgyzstan W7G
 Laboratory Preparation E80K92
 Ladakhi L73D
 Ladin L64F
 Ladino L648
 Lake WK25
 Lalitpur W7664
 Lamjung W7673
 Landha L6EC
 Language 4
 Languedoc L647
 Lanthanide series E836
 Lanthanum E8363
 Laos W85
 Latin L631
 Latvia W2E
 Latvian L665
 Law C
 Lawrencium E837H
 Lead (II) E8C62
 Lead (IV) E8C64
 Lead E8C6
 Lebanon W6G
 Lepcha L73E
 Lesbians P671
 Lesotho WCC
 Lhake L741
 Liberia WB1
 Libya WA5
 Liechtenstein W3G
 Limbo L735
 Limbu L735
 Limburgish language L617
 Limiting zones W0K31
 Linguistics 4
 Liquid state E80K26
 Lisu L74E
 Literature 5
 Lithium E812
 Lithuania W2G
 Lithuanian L666
 Lombardic L61G
 Lumbani W769
 Lusatian L674
 Lutetium E836H
 Luxembourg W3D
 Macedonia W49
 Macedonian L67F
 Madagascar WDG
 Magadhi L6DC
 Magar L732
 Magazines V51
 Magnesium E823
 Mahakali W76E
 Mahottari W7642
 Maithali L6DA
 Maithali language 36DA
 Makawanpur W7653
 Malagasy WDG
 Malawi WDB
 Malaya W88
 Malayalam language L523
 Malaysia W88
 Maldives W78
 Maldivian L6EF
 Male persons PK1
 Mali WBA
 Malta W4A
 Mammalia EDGG
 Manang W7675
 Manda language L537
 Mandarin L721
 Manganate E8G2F
 Manganese (II) E8742
 Manganese (III) E8743
 Manganese E874
 Manganic E8743
 Manganous E8742
 Manipuri L6DH
 Manuals V37
 Manx L655
 Marathi L6C7
 Married persons P51
 Marwari L6CA
 Mastigophora ED34
 Maternal aunt P4C
 Maternal great grand parents P4B
 Maternal uncle P4C
 Mathematical physics E4
 Mauritania WB9
 Mauritius WDC
 Mechi W761
 Medical Sciences G
 Meithei L74G
 Meittherium E88C
 Men PK1
 Mendelevium E837F
 Mercuric E8A62

Mercurous E8A61
 Mercury (I) E8A61
 Mercury (II) E8A62
 Mercury E8A6
 Meta-aluminate E8G1G
 Mewari L6CA
 Mexico WH5
 Microbiology EF
 Middle Africa WC
 Middle income persons PD3
 Middle WK4B
 Middle-class persons PC3
 Military zones WK33
 Moldavian L64G
 Moldova W51
 Molecular weight E80K5
 Molybdenum E865
 Monaca W3F
 Mongolia W95
 Morang W7622
 Morocco WA1
 Mother P42K2
 Mountain region WK53
 Mountain WK17
 Mozambique WDA
 Mugu W76C3
 Mustang W7684
 Myagdi W7683
 Myanmar W81
 Naga L6E0
 Naga L74A
 Naiki language L553
 Namibia WC9
 Narayani W765
 Natural Sciences E
 Nauru WE5
 Nawalparasi W7691
 Neodymium E8366
 Neon E802
 Nepal W76
 Nepalese PW76
 Nepali L6E5
 Nepali women PW76K2
 Nephew P4A
 Neptunium E8377
 Netherlands WGD
 Netherlands, The W36
 New Norwegian L621
 New Zealand WE8
 Newari L730
 Nicaragua WHA
 Nickel E88E
 Niece P4A
 Niger WBF
 Niger-Congo languages L2
 Nigeria WBE
 Niger-Kordofanian languages L2
 Nilo-Saharan languages L3
 Ningalami L6G3
 Niobium E855
 Nitrate E8G1B
 Nitrite E8G1A
 Nitrogen E8D2
 Nobelium E837G
 Noble gases E80
 Non-serial publications V6
 Norn L624
 North Africa WA
 North America WH
 North Germanic languages L62
 North Germanic languages L62
 North Korea W98
 North WK47
 North-east WK48
 Northern Dravidian language L57
 Northern Europe W2
 North-west W0K46
 Norway W28
 Norwegian L626
 Nungish L751
 Nuristani languages L6H
 Nuristani languages L6H
 Nuwakot W7668
 Occitan L647
 Oceania WE
 Oceans W15
 Okhaldhunga W7635
 Old Church Slavonic L67H1
 Old persons P38
 Old Prussian L662
 Oligocheeta EDA6
 Oman W63
 Organic Chemistry EA
 Orientation WK4
 Oriya L6DE
 Osmium E886
 Ossetian L6F6
 Oto-Manguean languages LE

Outside WK4F
 Oxygen E8E2
 Pacific W155
 Pahavi L6F0
 Pakistan W73
 Palau WEE
 Paleontology EG
 Pali L6C2
 Palladium E88F
 Palpa W7695
 Palpi L6E7
 Pamphlets V61
 Panama WHC
 Panchthar W7613
 Panjabi L6C9
 Papua New Guinea WEB
 Paraguay WFD
 Parbat W7681
 Parents in law P4D
 Parents P42
 Parji language L555
 Parsa W7652
 Pashayi L6G4
 Pashto L6F2
 Pengo language L539
 Periodicals V51
 Permanganate E8G1F
 Peroxide E8G22
 Persia W7B
 Persian L6F0
 Persons age groups P3
 Persons as agents P1
 Persons as targets groups P2
 Persons education P7
 Persons income level PD
 Persons lower-class PC5
 Persons male PK1
 Persons nationality PW
 Persons no income PD7
 Persons racial PL
 Persons sexual orientation P6
 Persons social classes PC
 Persons, low income PD5
 Persons, middle income PD3
 Persons, middle-class PC3
 Peru WFA
 Phalura L6G5
 Philippines W89
 Philosophy 1
 Philosophy V1
 Phosphate E8G3D
 Phosphorus E8D3
 Physical Chemistry E9
 Physical properties E80K6
 Physics E5
 Physics mathematical E4
 Plain region WK52
 Platinum E88G
 Platteleutsch language L61C
 Plumbic E8C64
 Plumbous E8C62
 Plutonium E8378
 Polabian L677
 Poland W58
 Polish L675
 Political Sciences A
 Polonium E8E6
 Pond WK27
 Portugal W4E
 Portuguese L649
 Potassium E814
 Practical instructions V7A
 Prakrit L6C3
 Praseodymium E8365
 Prasuni L6H3
 Preparation E80K9
 Preparation, general E80K95
 Promethium E8367
 Protactinium E8375
 Proto-chordata EDG1-6
 Protozoa ED3
 Provençal L647
 Prussia L662
 Psychology 2
 Putonghua L721
 Pyuthan W76A2
 Qatar W64
 Radicals, monovalent compound E8G1
 Radicals, trivalent compound E8G3
 Radicals, Tetravalent compound E8G4
 Radioactive elements E837
 Radon E806
 Rai L737
 Raining season TKD
 Rajasthani L6CA
 Rakhine L74C
 Ramechhap W7645
 Random E805

Rapti W76A
 Rare earth elements E836
 Rasuwa W7669
 Rautahat W7655
 Reference works V3
 Relationship P4
 Religions 3
 Research V7
 Rhaeto-Romance L64E
 Rhaeto-Romanic L64E
 Rhenium E876
 Rhodium E88A
 River WK23
 Roentgenium E897
 Rolpa W76A3
 Romance languages L64
 Romance languages L64
 Romania W55
 Romanian L64B
 Romansch L64E
 Romany L6CB
 Rubidium E815
 Rukum W76A5
 Rumanian L64B
 Rupandehi W7692
 Russia W5B
 Russian L672
 Rusyn L673
 Ruthenian L673
 Ruthenium E885
 Rutherfordium E847
 Rwanda WD7
 Sagarmatha W763
 Saint Kitts-Nevis WGF
 Saint Lucia WGH
 Saint Vincent WGG
 Salyan W76A4
 Samarium E8368
 Samoa WEH
 San Marino W4D
 Sankhuwasabha W7626
 Sanskrit L6C1
 Sao Tome and Principe WCF
 Saptari W7631
 Sarlahi W7643
 Saudi Arabia W65
 Scandium E834
 Scanian L627
 Sciences, general E0

Scots Gaelic L654
 Scots language L61A
 Scottish Gaelic L654
 Sea WK21
 Seaborgium E867
 Seasons TK9-E
 Selenium E8E4
 Selonian L668
 Semigallian L669
 Senegal WB8
 Sepik Ramu languages LD
 Serbian L67E
 Serbo Croat L67H2
 Serbo Croatian L67H2
 Serial publications V
 Seti W76D
 Seventh B groups elements E87
 Seychelles WDF
 Sharchopkha L73G
 Sherpa L73B
 Shina L6G2
 Shumashti L6G6
 Siam W82
 Siblings P44
 Sierra Leone WB2
 Sikhimese L742
 Silicate E8G2B
 Silicon E8C3
 Silver E895
 Sindhi L6ED
 Sindhulis W7644
 Sindhupalchowk W7662
 Singapore W8D
 Sinhala L6EE
 Sinhalese L6EE
 Sinitic languages L72
 Sino- Tibetan languages L7
 Siraha W7632
 Sisters in law P4E
 Sisters P44
 Slavic languages L67
 Slovak L67A
 Slovakia W5D
 Slovenia W43
 Slovenian L67B
 Social Sciences A
 Sodium Chloride E813.F3
 Sodium E813
 Sol 'ring language L61B

Solid state E8K22
 Solomon Islands WE9
 Solukhumbu W7636
 Somalia WD3
 Somogitian L667
 Sorbian L674
 South Africa WCB
 South America WF
 South Central Asia W7
 South Central Dravidian language L53
 South Korea W97
 South WK43
 Southeast Asia W8
 South-east WK42
 Southern Africa WC
 Southern Dravidian language L52
 Southern Europe W4
 South-west WK44
 Spain W4C
 Spanish L642
 Spring season TK9
 Sri Lanka W77
 Stannate E8G2C
 Stannic E8C53
 Stannous E8C52
 States of matter E80K2
 Step children P47
 Step parents P43
 Step siblings P45
 Strontium E825
 Study V7
 Sudan WA9
 Sudovian L663
 Sulphate E8G29
 Sulphur E8E3
 Sulphite E8G28
 Summer season TKA
 Sunsari W7621
 Suriname WF3
 Surkhet W76B3
 Swaziland WCE
 Sweden W29
 Swedish L628
 Switzerland W3A
 Syangja W7676
 Sylheti L6D9
 Syria W67
 Tables V39
 Tai L76
 Tai-Kadai languages L8
 Taiwan W96
 Tajik L6F5
 Tajikistan W7H
 Talysh L6F9
 Tamang L738
 Tamil language L521
 Tanahu W7672
 Tantalum E856
 Tanzania WD6
 Taplejung W7614
 Tay L6FA
 Technetium E875
 Technology F
 Tehrathun W7625
 Tehri L6E9
 Tellurium E8E5
 Telugu language L531
 Terbium E836B
 Tervalent compound radicals E8G3
 Tests V7E
 Tetravalent compound radicals E8G4
 Teutonic languages L61-2
 Texas German language L612
 Thai languages L76
 Thailand W82
 Thakali L739
 Thallium E8B6
 Thami L73A
 Theory VI
 Theses V65
 Thorium E8374
 Thulium E836F
 Tibetan L73C
 Tibeto- Burman Languages L73-5
 Tin (II) E8C52
 Tin (III) E8C53
 Tin E8C5
 Titanium E844
 Tocharian languages L6A
 Toda language L525
 Tonga WEC
 Town WK1E
 Training V7A
 Trans-New Guinea languages LC
 Tregami L6H5
 Trinidad and Tobago WGE
 Tshangla L73F
 Tshangla L73G

Tshanglato L73G
 Tujia L752
 Tulu language L524
 Tunisia WA4
 Tupi languages LF
 Turkey W68
 Turkmenistan W7D
 Tuvalu WEG
 Twentieth century AD TFC
 Udaypur W7633
 Uganda WD5
 Ukraine W57
 Ukrainian L671
 Umbrian L632
 Uncle P49
 Ungsten E866
 United Arab Emirates W60
 United Arab Republic WA7
 United Kingdom W25
 United States WH3
 Unmarried persons P53
 Ununbium E8A7
 Ununhe E8E7
 Ununpentium E8D7
 Ununquadium E8C7
 Ununseptium E8F7
 Ununtrium E8B7
 Unuoctium E807
 Upper-class persons PC1
 Uranium E8376
 Urdu L6CD
 Urochordata EDG3-5
 Uruguay WFG
 Users P2
 Uzbekistan W7E
 Valencian L64C
 Valley WK15
 Vanadium E854
 Vandalic L61E
 Vanuatu WE6
 Vatican City W4H
 Veddah L6EG
 Venezuela WF1
 Vietnam W87
 Village WK1G
 Waigali L6H6
 Water E811.E2
 Well WK29
 Welsh L656
 Wendish L674
 West (Insular) Nordic L620
 West Germanic languages L61
 West Germanic languages L61
 West WK45
 Western Africa WB
 Western Asia W6
 Western Europe W3s
 Western Samoa WEF
 Widowed persons P55
 Winter season TKC
 World W1
 Wymysojer language L614
 Xenon E805
 Yagnobi L6FB
 Yearbooks V55
 Yemen W62
 Yi language L74F
 Yiddish language L613
 Yola language L610
 Young P34
 Ytterbium E836G
 Yttrium E835
 Yue L722
 Yugoslavia W47
 Zambia WD8
 Zero groups elements E80
 Zimbabwe WD9
 Zincate E8G2A
 Zink E8A4
 Zirconium E845
 Zones WK3
 Zoology ED

CHAPTER FIVE

Analysis and Presentation

Since this study is a descriptive / theoretical research, so it has tried to compare most popular existing classification schemes such as DDC, UDC & CC with the newly device system. In this chapter, a comparison of these schemes has been made on the basis of sets of criteria.

5.1 Species of classification for subjects

DDC	UDC	CC	OC
It is an almost-enumerated scheme for classification. It has made greater effort than earlier editions faceted approach. Thus it is moving towards almost faceted scheme.	It is an almost enumerative scheme for classification.	Sixth edition was almost freely-faceted scheme. Seventh edition is going to be a freely faceted one.	It is an almost faceted scheme for classification.

5.2 Theory

DDC	UDC	CC	OC
It is guided by implicit principles but some general principles have been given in the introduction to the scheme.	It is guided by implicit principles leading to subjective decisions, instead of objectives one based on explicitly stated principles. Some of the general principles have been stated in the introduction to the abridged edition.	It is guided by definite, objectively applicable principles. These have been described in Ranganathan's prolegomena to library classification (1967). The scheme is based on a sound theory. The seventh edition of cc is being published which will conform to Ranganathan's theory far more than did the previous edition.	The Theoretical principles on which oc is based have been explained in the introduction to the scheme.

5.3 Parts of the scheme

DDC	UDC	CC	OC
It consists of auxiliary tables, classification schedule and an index.	The abridged edition consists of main tables, common & special auxiliaries, and an index.	It consists of schedule of basic subjects, schedule of common isolate and indexes.	It consists of main schedule, fused subject schedule, common & special auxiliaries, and an index

5.4 Main Classes

DDC	UDC	CC	OC
000 Computers, information and general reference	0 GENERALITIES	a Generalia	0 Generalities
100 Philosophy and psychology	1 PHILOSOPHY.	2 Library science	1 Philosophy.
200 Religion	2 PSYCHOLOGY	B Mathematics	2 Psychology
300 Social sciences	3 RELIGION.	C Physics	3 Religions. Theology
400 Language	4 THEOLOGY	D Engineering	4 Linguistics
500 Science and mathematics	5 SOCIAL SCIENCES	E Chemistry	5 Literature
600 Technology	6 VACANT	F Chemical technology	6 The arts. Music.
700 Arts and recreation	7 NATURAL SCIENCES	G Biology	7 Education
800 Literature	8 TECHNOLOGY	H Geology	8 Geography
900 History	9 THE ARTS	I Botany	9 History
	0 LANGUAGE.	J Agriculture	A Political Sciences
	1 LINGUISTICS.	K Zoology	B Social Sciences
	2 LITERATURE	L Medicine	C Law. Jurisprudence
	3 HISTORY.	M Useful arts	D Economics
	4 GEOGRAPHY	N Fine arts	E Pure Sciences
		O Literature	F Technology
		P Linguistics	G Medical Sciences
		Q Religion	H Agricultural
		R Philosophy	
		S Psychology	
		T Education	
		U Geography	
		V History	
		W Political science	
		X Economics	
		Y Sociology	
		Z Law	

DDC has divided the universe of subjects into ten main classes. UDC has divided the universe of subjects into nine main classes; the main class 4 is vacant. CC has divided the universe of subjects into several main classes. OC has divided the universe of subjects into eighteen main classes. OC has more main classes than DDC and UDC but less than CC.

5.5 The Division

DDC	UDC	OC
500 Science	50 Generalities about the pure science	E0 General Sciences
510 Mathematics	51 Mathematics	E1 Fundamental Mathematics
520 Astronomy	52 Astronomy.	E2 Applied Mathematics
530 Physics	53 Physics	E3 Astronomy
540 Chemistry	54 Chemistry.	E4 Mathematical Physics
550 Earth Sciences	55 Earth sciences.	E5 Physics
560 Paleontology	56 Paleontology	E7 General Chemistry
570 Life Sciences.	57 Biological Sciences in general	E8 Inorganic Chemistry
580 Plants	58 Botany	E9 Physical Chemistry
590 Animals	59 Zoology	EA Organic Chemistry
		EB Environmental Science
		EC Biology
		ED Zoology
		EE Botany
		EF Microbiology
		EG Paleontology
		EH Earth Science. Geology

DDC and UDC have divided main class pure science into ten divisions. OC has divided the main class pure science into eighteen divisions. In DDC & UDC coordination and subordination of life science are placed side by side. But in OC coordination and subordination of mathematics, chemistry and life science are placed side by side.

5.6 Section (Library classification of Inorganic Chemistry)

DDC	UDC	CC	OC
546.2 Hydrogen and its compounds.	546.1 Non-metals and metalloids in general	E10 Group 0	E80 Group 0
546.3 Metals their compounds, and mixture.	546.21 Oxygen	E11 Group 1	E81 Group IA
546.4 Groups 3B	546.29 Zero valents elements	E12 Group 2	E82 Group IIA
546.5 Groups 4B, 5B, 6B, 7B	546.3 Metals in general	E13 Group 3	E83 Group IIIB
546.6 Groups 8, 1B, 2B, 3B, 4A	546.41 Calcium	E14 Group 4	E84 Group IVB
546.7 Groups 5A, 6A, 7A, 0	546.56 Copper	E15 Group 5	E85 Group VB
546.8 Periodic table	546.62 Aluminium	E16 Group 6	E86 Group VIB
	546.711 Magnanese	E17 Group 7	E87 Group VIIB
	546.811 Tin	E18 Group 8	E88 Group VIIIB
	546.92 Indium		E89 Group IB
			E8A Group IIB
			E8B Group IIIA
			E8C Group IVA
			E8D Group VA
			E8E Group VIA
			E8F Group VIIA
			E8G Compounds radicals

The library classification of inorganic chemistry of CC is based on short form of Mendeleef's periodic table, where as OC is based on long form of Mendeleef's periodic table.

5.7 Subsection (Library classification of Alkaline earth metals)

Alkaline earth metals	DDC	UDC	CC	OC
Beryllium	546.391	546.45	E120	E822
Magnesium	546.392	546.46	E121	E823
Calcium	546.393	546.41	E122	E824
Strontium	546.394	546.42	E124	E825
Barium	546.395	546.43	E126	E826
Radium	546.396	546.44	E129	E827

From the above table last digits of OC shows the periods and second last digit shows the groups of elements in the modern periodic table. The positions of elements are arranged according to groups and periods of elements. OC numbers can show the position of the elements in Modern Periodic table. For example, E822 means Inorganic elements of second groups and second periods. So, the library users of inorganic elements easily understand the name of the elements by class number of OC.

5.8 Some examples of inorganic acids

Inorganic acids	DDC	UDC	CC	OC
Hydrochloric	546.73222	546.13-32	E3717	E811.F3
Sulphuric	546.72322	546.22-328	E3616	E811.G29
Sulphurous	546.72322	546.22-328	E3616	E811.G28
Nitric	546.71122	546.17-32	E3505	E811.G1B
Nitrous	546.71122	546.17-32	E3505	E811.G1A
Carbonic	546.68122	546.26-328	E3404	E811.G24

From the above table the class number of Sulphuric acid and Sulphurous acid are same in DDC, UDC and even in CC, but different in OC.

5.9 Species of digits

DDC	UDC	CC	OC
10 Arabic numerals 1 Punctuation mark i.e. dot '.' At certain places, use of Roman caps & Roman smalls is permitted if desired.	10 Arabic numerals 26 Roman caps 23 Roman smalls Some punctuations marks and mathematical symbols	10 Arabic numerals 24 Roman caps 23 Roman smalls Some punctuations marks and mathematical symbols	10 Arabic numerals 23 Roman caps 1 Roman smalls 3 Punctuations marks

The above table shows that OC has comparatively least national system than UDC & CC but more than DDC.

5.10 Indicator digits

UDC	CC	OC
+ / : =... (0/09) (=...) " "	* " ←) & ' . : ; , - = + → (. - + J K L M P Q R S T U V W X Y Z

The above table shows that OC has simple indicators digits than UDC and CC. The indicators digits of OC can be easily remembered.

5.11 Facets indicators

UDC	CC	OC
Language = Form (0/09) Place (1/9) Race, ethnic grouping and nationality (=) Time " " Properties -02 Materials -03 Persons -05	Time facet ' Space facet . Energy facet : Matter facet ; Personality ,	Language L Matter) M Person P Quality Q Time T Variant V

The above table shows that OC has very simple and easily remembered notation for facet indicator compare to UDC & CC

5.12 Phase Relation

DDC	UDC	CC	OC
Some provision is available	Provision is available, but it does not distinguish the different kinds and levels of phase relation.	Very good provision for phase relation.	Very good provision for phase relation like in CC. It has more indicator digits than CC for phase relation.

5.13 Area Table

DDC	UDC	CC	OC
-1 Areas, regions, places in general	(1) Places and space in general. Location	1 World	W1 World.
-2 Persons regardless of area, region, place	.Orientation	2 Mother country	W2 Northern Europe
-3 The ancient world	(2) Physiographic designation	3 Favored country	W3 Western Europe
-4 Europe	(3) Place of the ancient world	4 Asia	W4 Southern Europe
-5 Asia	(4) Europe	5 Europe	W5 Eastern Europe
-6 Africa	(5) Asia	6 Africa	W6 Western Asia
-7 North America	(6) Africa	7 America	W7 South Central Asia
-8 South America	(7) North and Central America	8 Australia	W8 South East Asia
-9 Other parts of the worlds	(8) South America		W9 East Asia
	(9) States and regions of the south pacific and Australia		WA Northern Africa
			WB Western Africa
			WC Middle & Southern Africa
			WD Eastern Africa
			WE Oceania & Australia
			WF South America
			WG Caribbean
			WH North & Central America

The geographical divisions according to DDC, UDC & CC have been done on the basis of continents. But OC has been divided on the basis of subcontinents because the longer the base number the shorter will be number of digits in a class number.

5.14 Examples from Area Table

SAARC Countries	DDC	UDC	CC	OC
Bangladesh	5492	(549.3)	--	W71
Bhutan	5498	(549.31)	--	W72
Pakistan	5491	(549.1)	44Q7	W73
India	54	(540)	44	W74
Nepal	5496	(541.35)	44974	W76
Sri-Lanka	5493	(548.7)	4498	W77
Maldives	5495	(548.82)	--	W78
Afghanistan	581	(581)	491	W7A

From the above table, the numbers of digits of all SAARC countries are same according to OC but different according to DDC, UDC and CC. This table shows that OC is not biased to any countries.

5.15 Language Table

DDC	UDC	CC	OC
-1 Indo-European	=1/=2 Indo-European	1 Indo-European	L2 Niger-Kordofanian
-2 English	=34 Dead language of unknown	2 Semitic	L3 Nilo-Saharan
-3 Germanic	=41 Afro-Asiatic	3 Dravidian	L4 Afro-Asiatic.
-4 Romance	=51 Ural-Altaic	4 Other Asian	L5 Dravidian
-5 Italian	=57 Dravidian	5 Other European	L6 Indo-European
-6 Spanish and Portuguese	=61 Austro-Asiatic	6 Other African	L7 Sino-Tibetan
-7 Italic	=71 Indo-Pacific	7 Other American	L8 Tai-Kadai
-8 Hellenic	=8 American Indian	8 Other Australian	L9 Austronesian
-9 Other languages	=9 Artificial	9 Other Oceanic	LA Austro-Asiatic
		99 Artificial	LB Australian
			LC Trans-New Guinea
			LD Sepik Ramu
			LE Oto-Manguean
			LF Tupi languages
			LG Areal grouping
			LH Artificial

5.16 Examples from Language Table

Languages	DDC	UDC	CC	OC
English	-2	=111	111	L619
Hindi	-9143	=214.21	152	L6CC
Nepali	-91495	=214.43	1595	L6E5
Bengali	-9144	=214.32	157	L6D5
Urdu	-91439	=214.22	168	L6CD
Maldivian	-9148			L6EF
Dzongkha	-954			L741
Sinhalese	-9148	=214.61	15198	L6EE
Dari	-9156		165	L6F3
Sanskrit	-912	=211	15	L6C1

5.17 Examples from Time Table

Dates	DDC	UDC	CC	OC
3BC	-09014	"-0003"	'C996	T8HE
10BC	-09014	"-0010"	'C989	T8H7
500BC	-09014	"-0500"	'C499	T75H
2356BC	-09013	"-2356"	'B7643	T12F
18 th Century	-09033	"17"	'L	TE6
19 th Century	-09034	"18"	'M	TEC
20 th Century	-0904	"19"	'N	TF6
16 th to 19 th Century	-0903	"15/18"	'M←J	TE0-F0
17 th to 19 th Century	-0903	"16/18"	'M←K	TE6-F0
1972 to 1980	--	"1972/1980"	'N80←N72	TFA0-8
1972 to 1989	--	"1972/1989"	'N89←N72	TFA0-H
1912 AD	--	"1912"	'N12	TF6C
1942 AD	--	"1942"	'N42	TF86
2005 AD	--	"2005"	'P05	TFC5
2006 AD	--	"2006"	'P06	TFC6
August 1942		"1942.08"	'N4208	TF86.8
15 th August 1942		"1942.08.15"	'N420815	TF86.8.F
Autumn of 1969		"1969:323"	'N69'n5	TF9FKB
Spring of 2004		"2004:321"	'P04'n1	TFC4K9
1920 to 1929		"192"	'N2	TF72-B
1980 to 1989		"198"	'N8	TFA8-H
1990 to 1999		"199"	'N9	TFB0-9
2000 to 2005		"2000/2005"	'P05←P00	TFC0-5
2001 to 2005		"2001/2005"	'P05←P01	TFC1-5
5 th Century BC		"-04"		T7B
5 th Century BC to 21 st Century AD		"-04/20"		T7B-FC

CHAPTER SIX

Summary/ conclusion and recommendation

6.1 Summary/ conclusion

This thesis has been summarized into six chapters. The first chapter deals with the introduction of the study which includes background, focus of the study, statements of problem, objectives, hypothesis of the study, scope and limitation of the study, significance of the study, definitions of terms and glossary, and organization of the study.

In the second chapter, a review of literature related to the names of elements, their symbols, classification of elements, periodic tables and lastly the most popular classification schemes like, Dewey Decimal Classification, Universal Decimal Classification, and Colon Classification are reviewed.

Third chapter is a research methodology which contains research design, population, sampling procedure, data collection procedure, and data analysis procedure.

The fourth chapter deals with the study area or octadecimal coding for inorganic substances (a classification scheme) in which introduction of the proposed coding system, its principles, characteristics, notational systems, parts of the scheme, Schedules (i.e. Main Schedule and Fused Subject Schedule), Auxiliaries (i.e. Common auxiliaries and Special auxiliaries), Language Table, Variant Table, Area Table, Person Table, Time Table, combination of numbers, Relations of subjects, i.e. General Relation, Bias Relation, fused relation, tool relation, Influence Relation, Main Schedule and Index.

The fifth chapter contains analysis and presentation of the study in which comparative analysis between proposed coding system with the most popular classification schemes like, Dewey decimal classification, Universal Decimal Classification, and Colon Classification are done.

The sixth chapter contains summary, conclusion, and recommendation of the study.

The proposed coding system is easy suitable for simple and inexpensive shelves arrangement, catalogues, index, bibliographies, documents lists, etc. of macro and micro documents of Inorganic Chemistry. In the same way to organizes laboratory related to different types of substances also can be maintained with the help of this coding system. The classification of inorganic chemistry according to this system is based on modern periodic table; the code number of it will be easy to remember for users of inorganic fields. This system is more flexible and simple to combine compounds of inorganic elements.

6.2 Recommendation

The recommendations of the study are as follows:

- i. It helps to more subjects using limited number of digits, due to the broad base numbers.
- ii. It has very few notations compare to other schemes, therefore, it is easy to code
- iii. It is simple
 - Easy to read;

- Easy to understand;
 - Easy to pronounce;
 - Easy to use;
 - Easy to write / type;
- iv. So, it helps to save the time of librarians to organize their library collections and users to retrieve their desired information with ease and accurate in a least possible time;
 - v. It has avoided Roman small letters since it will make confusion with Roman capitals to pronounce;
 - vi. It has more provision for phase relation to combine/relate subjects and facets;
 - vii. It has least number of digits in every facet, so it will be easy to store in memory;
 - viii. It has facet indicator (connecting digits) to distinguish or separate the character of the ideas represented by facets;
 - ix. It has very simple or easily remembered notation for facet indicator, i.e. T is for time, L is for language, M is for matter, P is for person etc;
 - x. It has provision for extrapolation for a growing universe of subjects by using Roman capital letter J
 - xi. It has enough space for newborn subjects or to have more hospitality in chain due to octadecimal fraction and in array due to quite broad base number;
 - xi. It has provision for Interpolation the new subjects between two consecutive ordinal numbers at any point in the array by using Roman capitals "X, Y, Z"

Therefore, it is helped that the study would be helpful in the efficient use of library resources having collections of inorganic chemistry. The basic use of the scheme is the intellectual organization, storage, and retrieval of units of thought and information of inorganic field without loss of time.

Since this study is based upon the comparative study of existing schemes, the librarians can have a look into all there schemes comparatively and get insight into the proposed scheme. As this is simple, easy and time saving, it is recommended to use this OC in the libraries and laboratories where these substances are used.

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Appendices

Periodic Table of Inorganic Elements

Periodic table

Group → IA IIA IIIB IVB VB VIB VIIB ---- VIIIIB ---- IB IIB IIIA IVA VA VIA VIIA VIIIA

↓ Period

1	1																	1
2	3	4											5	6	7	8	9	10
3	11	12											13	14	15	16	17	18
4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
5	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	
6	55	56	*	72	73	74	75	76	77	78	79	80	81	82	83	84	85	
7	87	88	**	104	105	106	107	108	109	110	111	112	113	114	115	116		

* Lanthanides	57	58	59	60	61	62	63	64	65	66	67	68	69	70
	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
** Actinides	89	90	91	92	93	94	95	96	97	98	99	100	101	102
	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No

Library of Congress Classification

Main Class

A	GENERAL WORKS
B	PHILOSOPHY. PSYCHOLOGY. RELIGION
C	AUXILIARY SCIENCES OF HISTORY
D	HISTORY (GENERAL) AND HISTORY OF EUROPE
E	HISTORY: AMERICA
F	HISTORY: AMERICA
G	GEOGRAPHY. ANTHROPOLOGY. RECREATION
H	SOCIAL SCIENCES
J	POLITICAL SCIENCE
K	LAW
L	EDUCATION
M	MUSIC AND BOOKS ON MUSIC
N	FINE ARTS
P	LANGUAGE AND LITERATURE
Q	SCIENCE
R	MEDICINE
S	AGRICULTURE
T	TECHNOLOGY
U	MILITARY SCIENCE
V	NAVAL SCIENCE
Z	BIBLIOGRAPHY. LIBRARY SCIENCE. INFORMATION RESOURCES (GENERAL)

Bibliographic Classification 2

Main Class

A/AL	Philosophy and Logic
AM/AX	Mathematics, Probability and Statistics
AY/B	Science in General & Physics
C	Chemistry
D	Astronomy, Earth Sciences
E/GQ	Biological Sciences
GR/GZ	Agriculture, Human Ecology
H	Anthropology, Human Biology, Health Sciences (incl. Medicine)
I	Psychology and Psychiatry
J	Education
K	Society
P	Religion, the Occult, Morals and Ethics
Q	Social Welfare & Criminology
R	Politics and Public Administration
S	Law
T	Economics & Management of Economic Enterprises
UV	Technology (including Household Management)
W	Recreation and the Arts (including Music)
X/Y	Language & Literature

Resume

Experience

Working in Supreme Court Library in Classification, Cataloguing, and Automation of books since December 2005.

Involved in the American Library, Kathmandu as an intern, since January, 2005;

Involved in Classification, Cataloguing, and Automation of books through Binod Pvt. Ltd. In Nepal

National Library and Kaiser Library Consultant since January, 2004;

Involved in Nabadip Library Consultancy Pvt. Ltd. as Managing director;

Resource person, III level training by Department of Library and Information Science Tribhuvan

University, Kirtipur; TULSSAA and Global Library

Educational Background

Level	Board	Year	Division	Subjects
B. Sc.	B.U.	2002	1st	Math, Physics, Chemistry
I. Sc.	T.U.	1998	2nd	Math, Physics, Chemistry
S.L.C.	H.M.G.	1995	1st	Math, Science

Additional Qualifications

- Basic Computer Skills in Windows, MS-Word, MS- DOS, Excel
- CDS / ISIS & WINISIS Library Management Software
- ATHENA Library management Software
- Supreme Court Library Software Management
- Pascal Computer Programming Language
- Web Page design
- Internet Skills

Visited

Most of the leading libraries in the Capital, India (Mumbai, Delhi, Agra, and Bangalore)

Date of Birth : 20 July, 1976

Marital Status : Married

Sex : Male

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Hobby: Playing cards and chess