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Programming Language

Machine Language
- 1st generation Language
- Low level Language
- Consists 0, 1
- No translator
- very fast execution speed.
- Efficient use of primary memory
- Machine-dependent
- Very tedious, difficult and time consuming

Assembly Language
- 2nd Generation Language
- Low level Language
- mnemonic code
- Type and read easily
- easier to debug errors than ML
- Assembler is required.
- easy to understand than ML
- Machine dependent.

HL Language
- 3rd G. Language
- Procedural Language
- common English words were used.
- use translators such as compiler and Interpreter
- Closer to human Language
- easy to read and write
- machine independent.
- Easier to debug than Assembly Language.

LOGO = Language of Graphics Oriented.

"Happiness is when what you think, what you say, and what you do are in harmony." –Mahatma Gandhi

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High Level Language
- 4th Generation Language
- Closer to human Language
- reduce overall time, effort and cost of software development.
- allows to interrogate and access computer databases

Visual Programming Language
- 5th Generation Language
- Provide a visual or graphical interface
- Tendency of error is less, debugging is also easier,
- Voice recognition system.

"It is my absolute belief that Indians have unlimited talent." / have no doubt about our capabilities." –Narendra Modi

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memory to be allocated to the program.

Differences between Compiler and Interpreter

Compiler	Interpreter
Compiler takes entire program as input.	Interpreter takes single instruction as input.
Intermediate object code is generated.	No intermediate object code is generated.
Conditional control statements execute faster.	Conditional control statements execute slower.
Memory requirement is more (since object code is generated).	Memory requirement is less.
Errors are displayed after entire program is checked.	Errors are displayed for every instruction interpreted.
e.g. Compiler in C language.	e.g. Interpreter in Basic language.

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8 What is the difference between machine language and assembly language?

Ans. Differences between machine language and assembly language are as follows

Machine Language	Assembly Language
Machine language uses binary digits (0s and 1s) to write a program.	Assembly language used mnemonic codes to write a program in place of binary digits.
It is not human readable language.	It is more human readable language.
It is directly understood by the computer.	It is not directly understood by the computer.
There is no need of any type of language processor.	Assembler is used to translate assembly language into computer understandable language.

9 What are HLLs? Give example of some HLLs.

Ans. Refer to text on Page No. 33.

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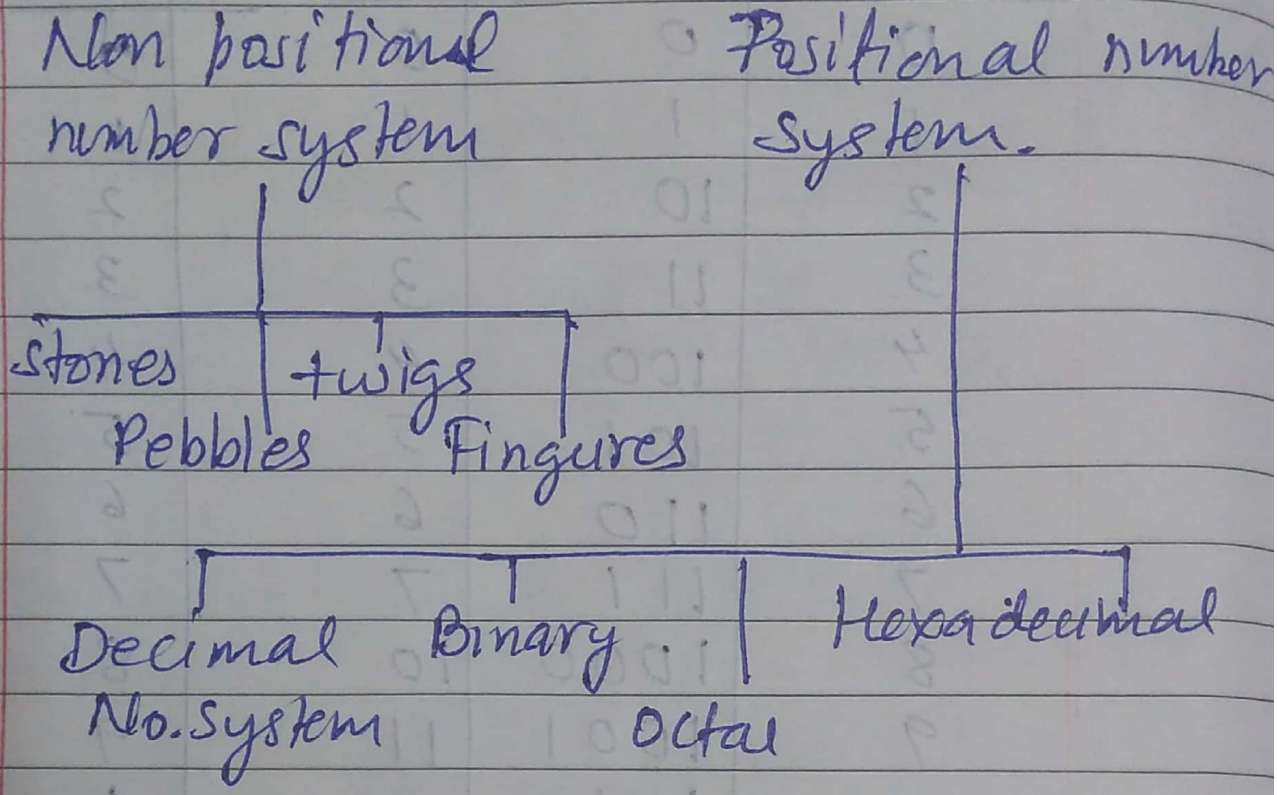
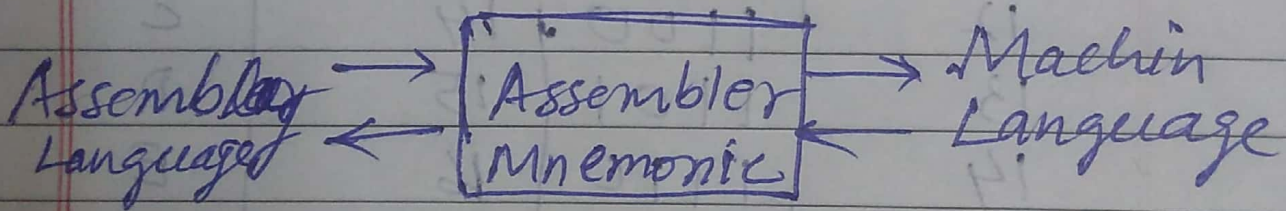
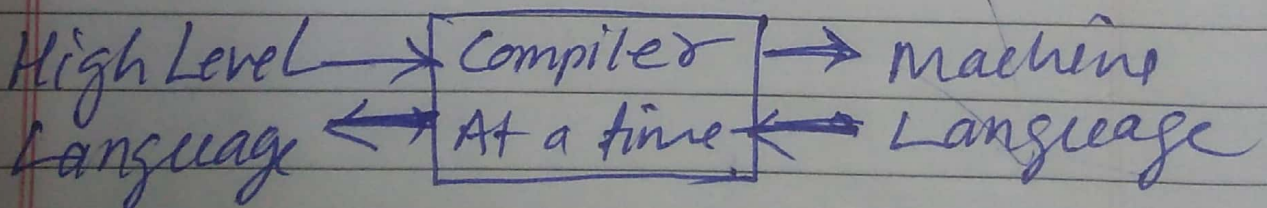
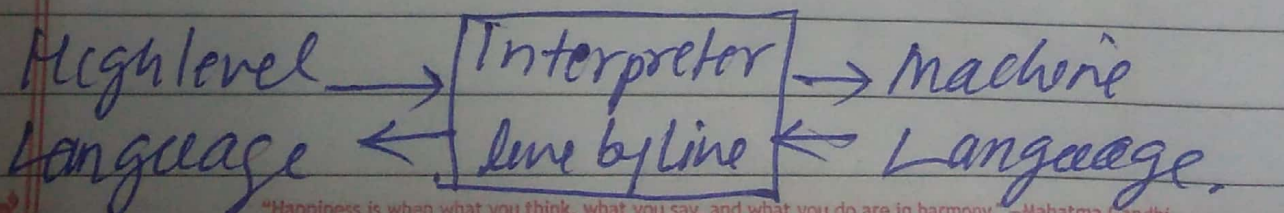
Number System









Chitra

"Happiness is when what you think, what you say, and what you do are in harmony." —Mahatma Gandhi

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Number System → A number system is a set of values used to represent different quantities.

The value of each digit in a number depends upon the following

1. The face value of the digit.
2. The base of the number system.
3. The position of the digits in the number.

Each position represents a specific power of base.

Most significant digit → 5 4 7 ← Least significant digit

2	25 = 1	→ Least significant Digit.
2	12 = 0	
2	6 = 0	↑
2	3 = 1	↑
2	1 = 1	→ Most significant Digit
	0	

Chitra

"Happiness is when what you think, what you say, and what you do are in harmony." –Mahatma Gandhi

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Date ___/___/_____

Decimal No.	Binary No	Octal No.	Hexa decimal No.
0	0	0	0
1	1	1	1
2	10	2	2
3	11	3	3
4	100	4	4
5	101	5	5
6	110	6	6
7	111	7	7
8	1000	10	8
9	1001	11	9
10	1010	12	A
11	1011	13	B
12	1100	14	C
13	1101	15	D
14	1110	16	E
15	1111	17	F

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