SUBJECT: MATHEMATICS **UNIT I & II**

CHAPTER:1 KNOWING OUR NUMBERS

I. Smallest and Largest number / Greatest Number:

- The procedure of forming the greatest number is as follows:

(a) The smallest digit is placed at one's place.

(b) The next greater digit is placed at ten's place.

(c) The next greater digit is placed at Hundred's place and so on.

(d) The greatest digit is placed at the highest place of the number.

- The Smallest number is formed by the following reverse procedure:

(a) The greatest digit is placed at one's place.

(b) The next smaller digit at ten's place and so on till all the given digits are finished.

(c) The smallest digit is placed at the highest place of the number.

Example: - Write the greatest and smallest number with the given 5 digits (2, 0 , 5 , 3 , 9) without repeating any digit.

Solution:-

Ten Thousands	Thousands	Hundreds	Tens	Ones	
9	5	3	2	0	**Greatest Number**
2	0	3	5	9	**Smallest Number**

Whenever one of the given digits is 0 ; it is not written at the extreme left for the smallest number. It is written in the second place from the left.

QNo1:- Use the given digits without repetition and make the greatest and smallest 4 – digit numbers.

		Greatest Number	**Smallest Number**
(i)	2 , 8 , 7 , 4	_____	_____
(ii)	9 , 7 , 1 , 4	_____	_____
(iii)	4 , 7 , 5 , 0	_____	_____
(iv)	5 , 4 , 0 , 3	_____	_____

Q No. 2:- Encircle the correct option:

(i) Which is greatest?

(a) 234 (b) 543 (c) 657 (d) 456

(ii) Which is smallest?

(a) 4567 (b) 3456 (c) 2345 (d) 1234

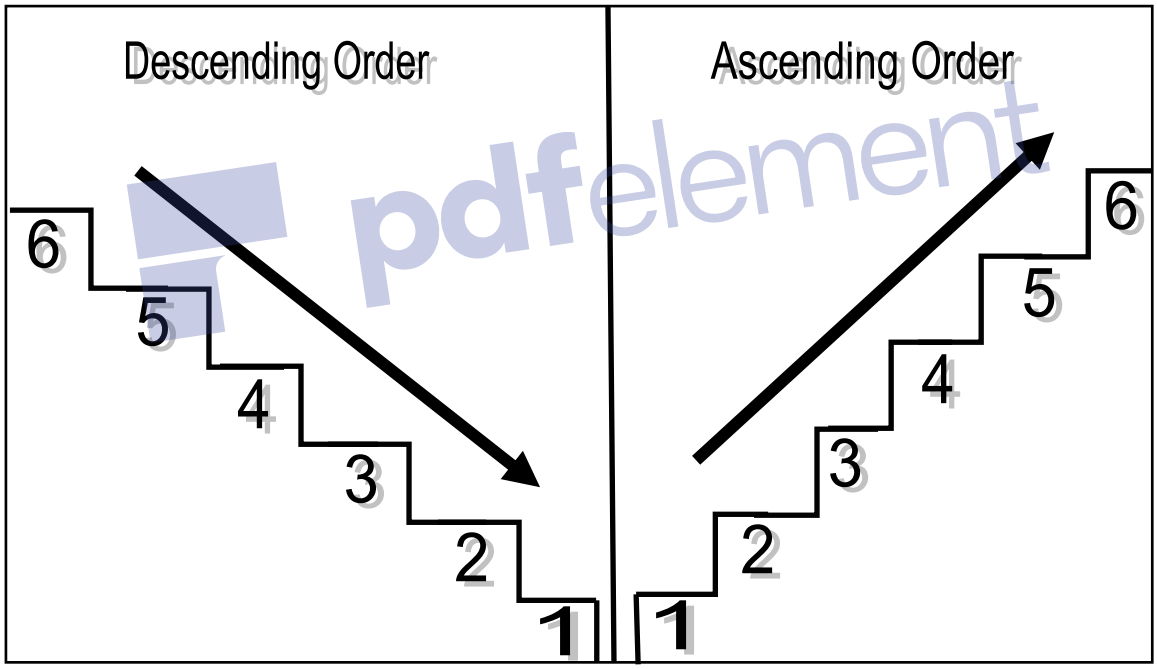
(iii) The greatest four digit number using 3 , 0 , 5 , 4 without repetition is:

(a) 3054 (b) 4035 (c) 5403 (d) 5043

II. Ascending and Descending order:

Ascending order:- Ascending order means arrangement from the smallest to the greatest.

Descending Order:- Descending order means arrangement from the greatest to the smallest.

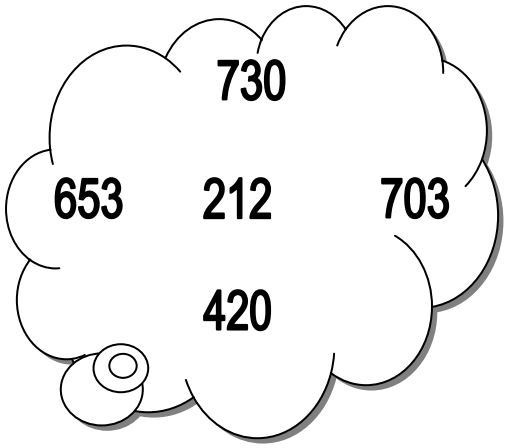


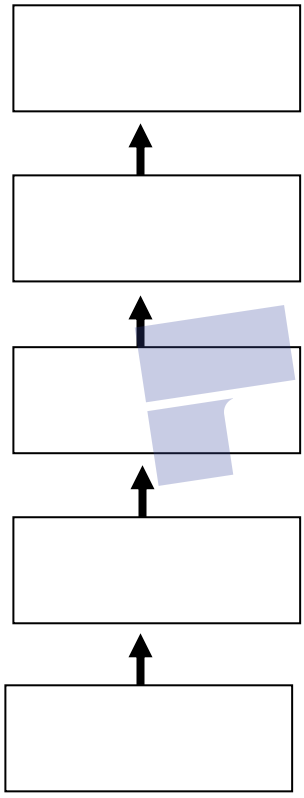
QNo 3:- Arrange the following numbers in Ascending and Descending Order:-

		Ascending Order ↑	Descending Order ↓
(i)	42 , 98 , 57 , 83	_____	_____
(ii)	847 , 9754 , 8320	_____	_____
(iii)	500 , 750 , 854 , 786	_____	_____
(iv)	7462 , 3402 , 8374	_____	_____

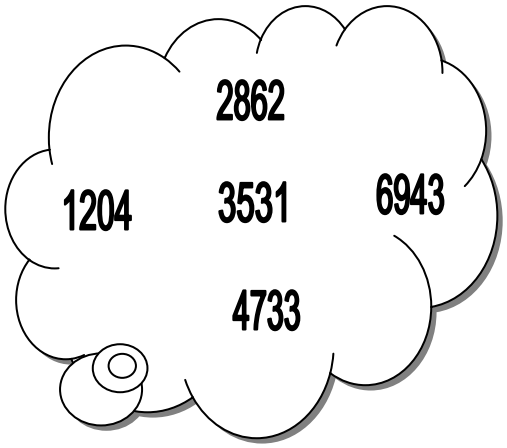
QNo. 4 :- Arrange the following numbers in Ascending order in the given boxes:

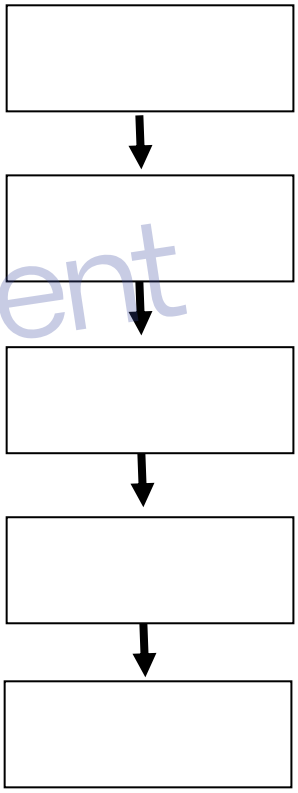
(a) **Ascending Order**





Descending Order





(b) **Ascending Order :-**

340 463 848 732

_____

(c) **Descending Order :-**

7942 6503 2890 4263

_____

III. Indian & International System of Numeration

Values of the places in the international System of Numeration are **ONES , TENS , HUNDREDS , THOUSANDS, TEN THOUSANDS , HUNDRED THOUSANDS , MILLIONS , TEN MILLIONS** and so on.

INDIAN NUMBER SYSTEM

	Ten Lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
94,12,871	**9**	**4**	**1**	**2**	**8**	**7**	**1**

Ninety Four lakhs Twelve Thousands Eight Hundred Seventy One.

INTERNATIONAL NUMBER SYSTEM

	Million	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
5,734,145	**5**	**7**	**3**	**4**	**1**	**4**	**5**

Five Million Seven Hundred Thirty Four Thousand One Hundred Forty Five

Q No. 5:- Write the number names in **Indian** and **International** System of numeration:

(a) 523860

_____

_____

(b) 34512

_____

_____

(c) 398210

_____

_____

IV ROMAN NUMBERS

In various parts of the world people used various systems of writing numerals. What we use is the Hindu – Arabic system of numerals. Another system of writing numerals, which is still used in several places is the Roman system.

How to write Roman Numerals

1	I	9	IX	17	XVII	70	LXX
2	II	10	X	18	XVIII	80	LXXX
3	III	11	XI	19	XIX	90	XC
4	IV	12	XII	20	XX	100	C
5	V	13	XIII	30	XXX	500	D
6	VI	14	XIV	40	XL	1000	M
7	VII	15	XV	50	L		
8	VIII	16	XVI	60	LX		

➢ **The Rules for the system are:-**

(i) **I**f a symbol is repeated, its value is added as many times as it occurs:
i.e. II is equal is 2, XX is 20, and XXX is 30.

(ii) A symbol is not repeated more than three times. But the symbol V , L and D never repeated.

(iii) If a symbol of smaller value is written to the right of a symbol of greater value, its value gets added to the value of greater symbol.
VI = 5 + 1 = 6 ; XII = 10 + 2 = 12 ; LXV = 50 + 10 + 5 = 65

(iv) If a symbol of smaller value is written to the left of a symbol of greater value, its value is subtracted from the value of the greater symbol.
IV = 5 – 1 = 4 ; IX = 10 – 1 = 9 ; XL = 50 – 10 = 40 ; XC = 100 – 10 = 90

(v) The symbol V , L and D are never written to the left of a symbol of greater value
i.e. V , L and D are never subtracted.

NOTE:- The symbol I can be subtracted from V and X only.
The symbol X can be subtracted from L M and C only

QNo.6:- Match the number to the Roman Numerals:

29	X
10	XXIX
2	XXXII
9	II
32	IX

CHAPTER 2: WHOLE NUMBERS

- **Natural Numbers:-** The numbers 1 , 2 ,3 , ... which we use for counting are known as natural numbers.
- **Whole numbers :-** The number '0' together with the natural numbers 1 , 2 , 3 , 4 ..... are called whole numbers.
  - ✓ '0' is the smallest whole number.
  - ✓ There is no largest whole number.
  - ✓ Every natural number is a whole number but '0' is a whole number which is not a natural number.
  - ✓ There is no predecessor of '0' in whole numbers.
- **Successor :-** If we add 1 to a natural number we get its successor.
- **Predecessor:-** If we subtract 1 from a natural number we get its predecessor.

EXAMPLE:- The successor and Predecessor of 3246 is

SUCCESSOR :-

$$\begin{array}{r} 3\ 2\ 4\ 6 \\ +\quad\quad 1 \\ \hline 3\ 2\ 4\ 7 \end{array}$$

PREDECESSOR:-

$$\begin{array}{r} 3\ 2\ 4\ 6 \\ -\quad\quad 1 \\ \hline 3\ 2\ 4\ 5 \end{array}$$

QNo.7:- Fill in the blanks:-

(i) Write the successor and Predecessor of 47932 _____ _____

(ii) The smallest whole number is _____

(iii) The smallest even whole number is _____

(iv) Division by _____ is not defined.

(v) The whole number which does not have a predecessor _____

QNo. 8:- Write True of False of the following:

(i) Zero is the smallest natural number.

(ii) 999 is the Successor of 1000.

(iii) 1 is smallest whole number.

(iv) The whole number 0 has no predecessor.

(v) All whole numbers are natural numbers.

CHAPTER:3 PLAYING WITH NUMBER

- **Factor**:- A factor of a number is an exact divisor of that number.

  For example 1, 2 , 3 , 6 , 9 and 18 are the factors of 18

- **Multiple**:- A multiple of a number 'a' is a number obtained by multiplying 'a' by a natural number.

- **Prime numbers:-** A natural number greater than 1, which has exactly two factors, namely 1 and itself is called a prime number.

  Example 2 , 3 , 5 , 7 , 11 , 13 , ... are prime numbers.

- **Composite Numbers:-** A natural number having at least one factor, besides 1 and itself is called a composite number.

  Example : 4 , 6 , 8 , 9 , 10 , 12 ,..... are called composite numbers.

- **Co Prime Numbers:-** Numbers, which do not have any common factor between them other than 1, are called co prime numbers.

  It is obvious that two prime numbers are always co prime.

  Example : 7 and 13

- **Test for Divisibility of Numbers:-** Please refer to text Book of Page Numbers 67, 68, 69 and 70.

- **Highest Common Factor (HCF):-** HCF of two or more given numbers is the highest or greatest of their common **factors**. It is also known as Greatest Common Divisor (GCD)

- **Lowest Common Multiple (LCM):-** LCM of two or more given numbers is the lowest or smallest or least of their common **multiples**.

QNo 1:- Fill in the blanks:-

(i) _____ is neither prime nor composite.

(ii) A number which has more than two factors is called _____.

(iii) If a number ends with 0, it is divisible by _____.

(iv) If a number is divisible by 6, then

(v) it is divisible by both _____ and _____.

(vi) The greatest two digit prime number is _____.

(vii) The smallest two digit prime number is _____.

(viii) A prime number has only _____ factors.

Q No. 2:- Choose the correct one.

(i) What are two numbers called having only 1 as common factor.

(a) Co – Prime Numbers (b) Prime Numbers

(b) (c) Composite Numbers (d) Twin prime numbers

(ii) Which of these is the factor of 50.

(a) 6 (b) 7 (c) 10 (d) 3

(iii) What is the multiple of 9?

(a) 2 (b) 27 (c) 17 (d) 35

(iv) The HCF of 2 and 3 is.

(a) 1 (b) 0 (c) 2 (d) 3

(v) The LCM of 5 and 5 is

(a) 1 (b) 3 (c) 5 (d) 15

(vi) Which of them is a prime number?

(a) 14 (b) 15 (c) 16 (d) 17

(vii) Which of them is composite number?

(a) 6 (b) 7 (c) 13 (d) 31

(viii) Which of the following number is divisible by 2?

(a) 10 (b) 15 (c) 25 (d) 35

(ix) Which of the following number is divisible by 3?

(a) 19 (b) 18 (c) 17 (d) 16

(x) Which of the following number is divisible by 4?

(a) 6 (b) 28 (c) 10 (d) 15

(xi) Which of the following number is divisible by 5?

(a) 2 (b) 3 (c) 4 (d) 25

(xii) Which of the following number is divisible by 10?

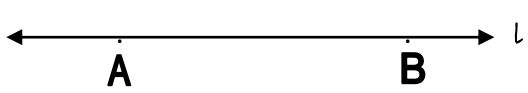
(a) 100 (b) 111 (c) 113 (d) 114

Q No 3:- Match the items in Column I and Column II

Column I		**Column II**
(i)	45	(a) multiple of 3
(ii)	15	(b) factor of 40
(iii)	24	(c) multiple of 7
(iv)	20	(d) factor of 30
(v)	35	(e) multiple of 9

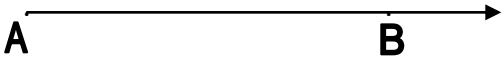
CHAPTER 4: BASIC GEOMETRICAL IDEAS

- **Point:-** A Point is used to represent any specified location or position. It has no size i.e. no width, no length and no depth. A point is shown by a dot. .
- **Line:-** Two points determine a line. Line is breadth less and has length only. Line extends indefinitely in both directions. A line is denoted by $\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$

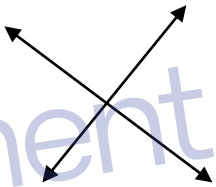


- **Line Segment:-** The definite length between two points. It is the shortest distance between two pints. A line segment has two end points and is denoted by $\overline{AB}$ or $\overline{BA}$.

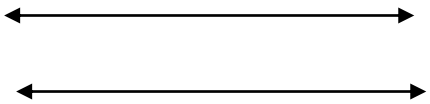
- **Ray:-** A ray is a portion of line. It starts at one point and goes endlessly in one direction. A ray is denoted by $\overrightarrow{AB}$.



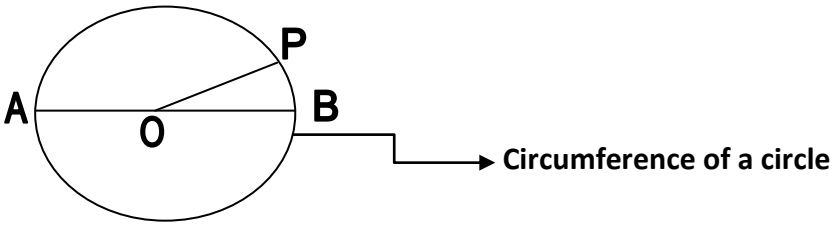
- **Intersecting Lines:-** Two lines which cross over each other.



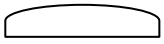
- **Parallel Lines:-** Two lines which do not intersect each other.



- **Circle:-** The locus of a point which moves in such a way that its distance remains constant from the fixed point. The fixed point is called centre of the circle and the constant distance is called radius of the circle.



- **Circumference of Circle:-** Length of boundary of circle is the circumference.
- **Radius :-** The line segment that connect the centre of circle to any point on the circle. OP is the radius of the circle.
- **Diameter:-** The line segment that connects two points on the circle and passes through the centre of the circle. AB is the diameter of the circle.
- **Segment of Circle:-** A line which divides a circle into two parts.
- **Semi Circle:-** Equal half part of a circle divides by a diameter.



- **Sector of a circle:-** Area bounded by an arc and two radius of circle.

Q No 4:- Write True or False:

(i) A line segment has no length _____

(ii) A ray has only one end point _____

(iii) The line AB is same as that of line BA

(iv) One line can be drawn passing through two given points _____

(v) All radii of circle are equal in _____

Q No 5:- Match the following:

(a) Triangle	(i) 5 sides
(b) Quadrilateral	(ii) 3 sides
(c) Octagon	(iii) 4 sides
(d) Hexagon	(iv) 8 sides
(e) Pentagon	(v) 6 sides

Q No6:- What do the following things in our surrounding represent:- (Use the word given in the box)

A Point	**A ray**	**A Line Segment**
A Plane	**Parallel Lines**	**Intersecting Lines**

(i) Tip of pencil _____

(ii) Light coming out of torch _____

(iii) Flat surface of a table _____

(iv) Opposite edges of a ruler _____

(v) Adjacent edges of a ruler _____

(vi) Edge of a ruler _____

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