BIFURCATION OF SYLLABUS(2023-24)
SUBJECT: MATHEMATICS
CLASS: VII

TEXT BOOK -NCERT MATHEMATICS

TERM I	ASSESSMENT	MONTH	WORKING DAYS	CHAPTER	SUB TOPICS	LEARNING OBJECTIVES	ACTIVITY	SYLLABUS COVERAGE
APRIL TO SEPTEMBER	PT-1 **Max M:40** **(Weightage 5 m)**	**April**	**15**	1. INTEGERS	➢ Recall number system ➢ Positive and negative numbers ➢ Addition, subtraction, multiplication and division of integers ➢ Properties ➢ Closure ➢ Commutative ➢ Associative Distributive	➢ Recall integers in order to differentiate between whole numbers and integers ➢ Represent integers on a number line and perform operations and verify properties ofintegers. ➢ Apply properties of addition, subtraction andmultiplication of integers and devise methodsfor easier calculation and solve problems based on real life related to integers. ➢ Apply properties of division of integers and ➢ simplify arithmetic expressions.	To demonstrate multiplication of integers using number line.	30% of Term-1.
		May/June	**15**	2. FRACTIONS AND DECIMALS	➢ Define fraction ➢ Addition, subtraction, Multiplication, Division of fractions and decimals ➢ Place value table of decimals Decimal conversions	➢ Define proper, improper and mixed fractionsin order to distinguish between them. Convert unlike fractions into like fractions in order to compare them. ➢ Multiply fractions in order to compare thevalue of the product with the original fractions. ➢ Divide two fractions in order to find thesmaller parts of the fraction. ➢ Recall and apply concept of	To derive the rule of finding product of two fractions using paper folding method.	

						decimal representation and expansion in order toperform mathematical operations on decimal. ➢ Convert decimals into fractions in order to divide decimal number by another decimal number		
		July	**23**	**3. Understanding Quadrilaterals**	➢ Definition of data ➢ Range ➢ Measure of central tendency ➢ Mean ➢ Median ➢ Mode ➢ Reading bar graph ➢ Construction of double bar graph ➢ Probability	➢ Collect, record and present data in order toorganize experiences and draw inferences from them. Organize raw data into tabular form in order to make data easier to interpret. ➢ Calculate arithmetic mean in order to find its position in the data. Calculate mode of the data in order to find the observation that occurs most often in the data set. ➢ Calculate median of the data in order to find the observation that lies in the middle of the data set. ➢ Represent data in a bar graph using appropriate scale in order to represent given information in form of a bar graph. Represent data using double bar graph in order to compare and discuss two collections of data at a glance.	To collect two sets of data, represent this through a double bar graph and interpret it.	

			24	4. SIMPLE EQUATION	➢ Setting up an equation ➢ Solving an equation ➢ Solution of an equation ➢ Applications of simple equations	➢ Use number and variable with different operations in order to express a real life situation in the form of a simple linear equation. ➢ Use trial and error method in order to determine the solution of a simple equation. ➢ Explain the first step to be taken in order to separate the variable while solving the given equation. Use the given solution in order to construct equations from it. ➢ Construct simple equations in order to solve them for the given contextual problems/puzzle	Construction of equations for problems related to real life situations.	
		August		5. LINES AND ANGLES	➢ Complementary angles ➢ Supplementary angles ➢ Adjacent angles ➢ Linear pair	➢ Recall the concept of line, line segment and angles in order to identify them in the given figure(s). ➢ Examine different angles in order to identify complementary angles. Examine different angles in order	To verify that when two lines intersect, vertically opposite angles are equal.	

					➢ Vertically opposite angles ➢ Transversal Angles made by a transversal	to identify supplementary angles. ➢ Examine different angles in order to determine the measure oftheir complement and supplement. ➢ Describe adjacent angles in order to identify a pair of adjacent angles in the given angles. ➢ Examine different angles in order to identify linear pair. ➢ Describe vertically opposite angles and their property in order to identify them in the given figure. ➢ Identify different types of angles in order to determine the measure of unknown angles in the given figure. ➢ Discuss the different angles made by a transversal and intersecting lines in order toidentify them in the given figure. Use the properties of angles made by a transversal of parallel lines in order to determine the measure of unknown angles.		
				6. THE TRIANGLE AND ITS PROPERTIES	➢ Median ➢ Altitudes ➢ Angle sum property ➢ Exterior angle property ➢ Triangle inequality Pythagoras theorem	➢ Compare different triangles in order to classify them on the basis of their sides andangles. ➢ Recall the parts of a triangle in order to describe it for the given triangle. Describemedian and altitude of a triangle in order to identify it for the given triangle. ➢ Apply the exterior angle property of a triangle in order to find the measure of the unknown angle in the given triangle.	To verify the angle sum property of a triangle.	

						➢ Apply the angle sum property of a triangle in orderto find the measure of unknown angle. ➢ Apply the property of lengths of sides of a triangle in order to determine whether a triangle is possible for the given side lengths or not. ➢ Apply the Pythagoras property in order to verify whether the triangle for the given sidelengths will be right angled triangle or not. ➢ Apply the Pythagoras property in order to fine the length of the unknown side in a right-angled triangle		
	PT-2 **Max M:80** **(Weightage 80 m)**	**September**	**22**	7. CONGRUENCE OF TRIANGLES	➢ Congruency of plane figures ➢ Congruent line segments ➢ Congruent angles ➢ Congruence of triangles ➢ SSS ➢ SAS ➢ ASA ➢ RHS Criteria	➢ Experiment superposition of different lengths in order to understand congruenceof two line segments and vice versa. ➢ Use SSS, SAS, ASA, RHS Congruence criterionin order to examine whether the given triangles are congruent or not.		
				8. COMPARING QUANTITIES	➢ Comparing by division ratio ➢ Percentage ➢ Application of percentages to profit and loss Simple interest	➢ Convert ratios into like fractions and compare them in order to identify equivalent ratios. ➢ Represent equal ratios in proportion in order to find missing term(s). ➢ Convert denominators of fractions into 100in order to represent them in percentages.	Collection of 5 different bills and finding the following quantities: SP, Profitor Loss	30+20=50% of Annual Syllabus

						➢ Convert fractional numbers to percentage inorder to make comparing of quantities easier. ➢ Convert decimal numbers to percentage in order to make comparing of quantities easier. ➢ Convert percentages to fractions or decimals in order to solve real life problems. ➢ Calculate increase or decrease in quantity aspercentage in order to examine change in quantity based on real life problems. ➢ Calculate cost and selling price in order to determine profit/loss percentage. ➢ Understand the concept of simple interest inorder to interpret word problems. ➢ Make useof percentage in order to calculate simple interest for multiple years.		

TERM-2 OCT TO MARCH	**PT-3** **Max M:40** **(Weightage 5 m)**	**October**	**14**	9. RATIONAL NUMBERS	➢ Need for rational numbers ➢ +ve and –ve rational numbers ➢ Rational numbers on number line ➢ Rational numbers in standard form ➢ Comparision of rational numbers ➢ Operations on rational numbers	➢ Define rational numbers in order to classify anumber as a rational number. Represent integers in the form of numerator/denominator where denominator is non-zero in order to define rational numbers. Multiply numerator and denominator by same non-zero integer in order to find equivalent rational numbers. ➢ Define positive and negative rational numbers in order to classify a number as either of them. Construct a number line in order to represent rational numbers on it. Simplify rational number such that there isno common factor between numerator anddenominator in order to represent the number in standard form. Determine the distance of a rational number from 0 in order to compare them. ➢ Calculate and find rational numbers between any 2 rational numbers in order to infer that there are infinite rational numbers between any 2 given rational numbers. Apply the rules of rational numbers operations in order to simplify arithmetic operations.	To add/ subtract two rational numbers using Graph sheet.	30% of Term-2

		November	**22**	10. PRACTICAL GEOMETRY	Construction of line parallel to a given line through a point not on the line ➢ Construction of triangles ➢ SSS ➢ SAS ➢ ASA ➢ RHS criteria	➢ Use a ruler and compass in order to construct a line parallel to another line through a point not on the line. List and execute steps in order to construct a trianglegiven the measures of its three sides. ➢ List and execute steps in order to construct atriangle when any of its two lengths and an angle between them is given. List and execute steps in order to construct a trianglewhen any of its two angles and the side included between them is given. ➢ List and execute steps in order to construct aright-angled triangle when the length of one leg and its hypotenuse are given. Examine the given information in order to determineif construction of a triangle from it is possible or not.	To examine the possibility of construction of a triangle with the given parameters.	

				11. PERIMETER AND AREA	➢ Square and rectangles ➢ Triangles and parts of rectangles ➢ Perimeter of square rectangle and triangle ➢ Area ➢ Area of rectangle, square and triangle ➢ Circumference of a circle ➢ Area of a circle	➢ Describe the area and perimeter of plane figures in order to find the same for squareand rectangle. ➢ Develop and apply a formulain order to determine the area of triangle ashalf of the area of a rectangle. ➢ Use unit square grid sheets in order to find the perimeter and estimate the area of parallelogram. ➢ Develop and apply a formula in order to determine the area of a parallelogram. ➢ Compare the area of a triangle and its corresponding parallelogram in order to discuss their relation. ➢ Use direct or indirect measurements in order to describe the relationships among radius, diameter, and circumference of circles. Investigate different circumference of circles and compare them with their respective diameter in order to relate circumference to Pi. ➢ Use direct or indirect methods to find the circumference of circle, semicircle. ➢ Develop and apply the formula in order to find the area of a circle and semicircle. ➢ Examine area and perimeter of different ➢ figures in order to find solution for real lifeproblems	➢ To derive the formula to find area of a circle.	

		December	**17**	12. ALGEBRAIC EXPRESSIONS	➢ How are expressions formed ➢ Terms of expression ➢ Coefficients ➢ Like and unlike terms ➢ Monomial, binomial, trianomials and polynomials ➢ Addition and subtractions of algebraic expressions ➢ Finding the value of an expression	➢ Describe algebraic expressions in order todistinguish them from arithmetic expressions. Combine variables and constants in order to form an algebraic expression for the given statement. ➢ Examine the given algebraic expression in order to determine its terms and their factors. ➢ Examine the given algebraic expressions in order to distinguish betweenthe terms which are constants and those which are not. ➢ Examine the given algebraic expressions in order to classify them as monomial, binomial, trinomial, polynomial. ➢ Combine like terms in order to simplify the given algebraic expression. ➢ Add algebraic expressions in order to determine their sum.Subtract the given algebraic expressions in order to determine their difference. ➢ Use the given algebraic expression in order to complete the table of number patterns orfind its nth term. ➢ Examine the pattern in order to verify whether the given algebraic expression satisfies the shown pattern or not.	➢ To differentiate like and unlike terms using card game.	

				13. EXPONENTS AND POWERS	➢ Exponents ➢ Laws of exponents ➢ Miscellaneous examples using the laws of exponents Expressing large numbers in the standard form	➢ Describe exponential form of numbers in order to express numbers in exponential notation. Examine the exponential form ofthe given number in order to identify its base and exponent. Examine the numbersgiven in exponential form in order to compare and represent them in an order. Find prime factors of numbers in order toexpress them as the product of powers ofprime factors. ➢ Apply laws of exponents in order to simplifya given expression. ➢ Write numbers using powers of 10 in orderto express them in standard form. Expandthe given number using powers of 10 in order to express it in the exponent form. Represent large numbers in exponential form in order to read, understand and compare them easily	To find the value of a^n(where a and n are natural numbers) using paper folding	
		January	**22**	14. SYMMETRY	➢ Introduction ➢ Line symmetry for regular polygons ➢ Rotational symmetry	➢ Determine lines of symmetry for the given figures in order to classify them on the basisof no. of lines of symmetry. ➢ Examine regularpolygons in order to determine their lines of symmetry. ➢ Complete the mirror reflection of the givenfigures along the mirror line (i.e., the line of symmetry) in order to identify the figure. ➢ Examine the given figure in order	➢ To find the order of rotational symmetry of a given figure.	

						to determine its angle of rotation. ➢ Examine the given figure in order to determine its order of rotation. ➢ Examine the given figures in order to identify figures which have both line symmetry as well as rotational symmetry		
				15. VISUALISING SOLID SHAPES	➢ Introduction ➢ Plane figures and solid shapes ➢ Cross-section of 3d shapes ➢ Nets for building 3d shapes ➢ Viewing different sections of a solid	➢ Examine different solid shapes in order to identify and count their number of faces, edges and vertices. ➢ Examine oblique sketches in order to visualize all the faces of a solid shape. ➢ Draw 3D objects in 2D in order to visualize solid objects from different perspectives. ➢ Examine cross sections of different solid shapes in order to interpret and visualize different planes. ➢ Examine the different figures formed by changing the angle of shadows formed in order to visualise solid figures.	➢ Making 3 D shapes using nets.	
11		**February**	**22**	**Revision**				
12	**ANNUAL EXAMINATION** **Max M:80** **(Weightage 80 m)**	**March**	**23**	**Annual Exam and Results**				20% of Term-1 + Entire syllabus of Term-2