

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		Complex Numbers Unit 1	Student will be able to know..... 1. What is a Complex Number? 2. Equality of Complex Numbers. 3. Conjugate of Complex number. 4. Basic operations on Complex Number like i. Addition ii. Subtraction iii. Multiplication iv. Division 5. Graphical representation of complex numbers. 6. Absolute value or Modulus of a complex number.	I will go through lecture method with solved examples and the definitions.	I will make the groups of students and hand over the task as; i. What b complex number? ii. How to calculate the modulus of a complex number. iii. Graphical representations iv. multiplication	Ex: 1.1 Q:1 Q:2 Q:3 Q:4 Q:5	
		// // //		Revision of the (through lectures and examples) topic related to remaining questions.	Check home work Q;6, Q;7 Q;8	Ex:1.2	
		Properties of complex numbers like real numbers, properties of addition and multiplications hold in C numbers.	Properties of additions A-1 Additions is commutative A-2 Addition is Associative	Lecture method previous knowledge of I.e(1) $a \times b = b \times a$ $\forall a, b \in \mathbb{R}$ And examples in the Text book.		Q*1	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
//		Properties of multiplication:	M-1 Multiplication is Associative M-2 Multiplication is commutative.	I will use lecturer method to Explain all these properties and will go through.		Q#2 Q#3	
		Multiplication Addition property (Distributive)	M-A Multiplication is distributive over Addition i-e .3.2	Examples /// // // // // //			
			Additive identity and multiplicative identity of complex numbers. Students will be able to know about 1.3.3 Additive inverse and multiplicative inverse of complex numbers.	Make then (students to understands the concept of identity i-e Additive and multiplicative identity- Through Definitions and Examples-		Q#4 (i) and (ii) Q#5 (i) and (ii)	
		Some properties of the conjugate and Modulus of complex number-	Theorem 1.3.1 a. $ Z = -Z = Z^* = -Z^* $ b. $ZZ^* = Z ^2$ c. $Z_1 Z_2^* = Z_1^* Z_2$ d. $Z = Z^*$ e. $Z_1 + Z_2 = Z_1^* + Z_2^*$ f. $(Z_1/Z_2)^* = Z_1^*/Z_2^*, Z_2 \neq 0$	Lecture method through Examples		Q#6 Q#7 Q#8 Q#9	
			Students will be able to calculate Real and inn imaginary parts of the complex numbers of the form..... 1. $(x+2y)^n$	Lecture method through solved example and previous		Q#10 (i) to (viii) And preparation	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			2. $(x+2y/x_2+2y_2)^n$, $X_2+2y_2 = 0$ And $n = +2$	knowledge, Like $(a+b) = \dots\dots\dots?$ $(a+b)^2 = \dots\dots\dots?$			
		Test Ex:1.1 & 1.2					
		Solution of Equations	Students will be to know how to calculate “the solution of simultaneous linear equation with complex co-efficient” To Ensure the students “the simple rule for solving such system of equations is the “Method of Elimination and substitutions” Expression of the polynomial P(Z) as a product of linear factor.	Lecture method to and given examples given in Text book- Example 1.4.1	Ex: 1.3 Q#1 Q#2 Q#3		
			Students will be able to know the definition of “polynomial “ , “ Degree” , “Concept related” to pervious knowledge.	Lecture Method Definition through examples given in text book.			
			Students will be able to know about “the factor theorem” Students will be able to know “to Convert polynomial into linear factor”	Lecture Method through Example			
			Students will be able..... Quadratic equation of the form $PZ^2+qZ+r=0$ Its solution through completing Square.				

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		<p>Matrices and Determinants.....</p> <p>Unit 2</p>	<p>Students will be able to know about</p> <ul style="list-style-type: none"> ➤ Know a matrix and its notation, ➤ Order of matrix, ➤ Concept of rows and columns, ➤ Equal matrixes, <p>Types of matrix</p> <ul style="list-style-type: none"> (a) Row matrix or row vector (b) coloumns matrix or column vector (c) rectangular matrix (d) Square matrix (e) Diagonal matrix (f) Scalar matrix (g) Unit matrix identity matrix (h) Zero matrix or Null matrix 	<p>Lecture Demonstration method to make the students understand with the help of A.V and like book, Chalk, Writing board etc. And with the help of previous knowledge..... Through examples given in Text Books.</p> <p>➤ Students will be able to add and Subtract and through determination.</p>	<p>During the class ask the questions like</p> <ol style="list-style-type: none"> 1 What is matrix? 2 Difference between Rows and Columns 3 How to find order of a matrix <p>How many kinds of matrixces Name and Differentiate</p> <p>➤ Assign students 2×2 matrixes to add and subtract the matrices.</p>	<p>“Learning” of related material by heart with Concepts.</p>	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		Algebra of Matrices	i. Addition of matrices ii. Scalar multiplication iii. Subtraction of matrixes iv. Multiplication of matrixes Pre – Post – multiplied concept	Given examples in Text Book.			
		Transpose of a matrix	Students will be able to calculate the transpose of a matrix having the concept of rows and colums	Demonstration and lecture method with the help of examples and definition given in the text book.	Make each student to calculate transpose	Q#3 (i) & (ii) (iii) Q#6 Q#7 (i) , (ii) and (iii)	
		Determinant of a matrices Concept of ad joint	They will be able to calculate determinant of 2×2 matrices.... Through Determinant they will be able to know about “singular” and “non singular” matrices. This determinant will be helpful to find “inverse” of matrices having order 2×2 in addition to Ad joint.....	Same strategy should be applied to make them understand the “Determinant” singular and “ non singular” inverse of ad joint of a matrix....	Determinant of two cross to and related concept oral communication involving whole class.		
		2.6 Solution of simultaneous linear equations by using	Students will be able to calculate the value of unknown variable involved in simultaneous	Demonstration lecture through definitions and examples given in the Books.	To make matrices through equations. Code: any two equations.....	Q#8 (i) , (ii) & (iii) Ex: 2.2	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		matrices. Properties of matrix Addition, Scalar multiplication and matrix multiplication	linear equations Properties namely i. Commutative To addition ii. Associative to addition iii. Existence of addition inverse iv. Associative property of scalar multiplication v. Distributive property of scalar multiplication vi. Associative w,r to multiplication vii. Existence of multiplication identity viii. Left distributive law ix. Right distributive law	Oral communication to revise all the properties given in the text book . Note: (students are familiar with them, As also learnt in unit #1)	Oral discussion by involving all class. (each individual)		
		Determinants of higher order i.e $n \geq 3$	Students will be able calculate the determinants of higher order i.e $n \geq 3$ Minor and Co-factor of an element of a matrix or its determinants. "its also related with the	Demonstration lecture method to make students understand Demonstration and lecture method with the help of previous knowledge of	To find the determinants of 2×2 .	Q#3,4 Q# 5 Q#1 , Q#6 Q#7 Q#8	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			concept of determinants of order 2×2	“determinants” of order 2×2 and go through all the example given on books.			
		Properties of determinants	<p>Students will be able to calculate the properties.</p> <p><u>Property-1</u> If every element in arrow or column of a square matrix A is zero then $A = 0$</p> <p><u>Property-2</u> If all the elements of the corresponding rows and columns of a square matrix “A” is interchanged, then the determinant of the resulting matrix is A then $B = A$</p> <p><u>Property-3</u> If any two rows or two columns in a square matrix A are interchanged, then the determinants of a resultant matrix is $- A$</p> <p><u>Property-4</u> If a square matrix “A” has two rows and two identical columns then $A = 0$</p>	Demonstration and lecture method to clear all the properties one by one 1 to 7.	<p>Q1 What is determinant?</p> <p>Q2 How to calculate?</p> <p>Q3 How to interchange the rows and columns?</p> <p>Etc</p>	<p>Learn by heart all the properties and practice the relevant material....</p> <p>Q#2, Q#9 to Q#15</p>	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		Adjoint and inverse of	<p><u>Property-5</u> If every element of a row or column of a square matrix A is multiplied by the real number K, then the determinant of the resulting matrix is $k A$</p> <p><u>Property-6</u> If every element of a square matrix A is Sum of the two terms, then its determinant can be written as the sum of two determinants.</p> <p><u>Property-7</u> If every element of any row or column of a square matrix is multiplied by a real number K and the resulting product is added to the corresponding elements of another row or column of the matrix, then the determinant of the resulting matrix is equal to the determinant of the original matrix. Order $n \geq 3$</p>	Related with previous.	What is inverse of		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		square matrix.			2×2?		
		Some more special types of matrices	a. Upper triangle matrix b. Low triangle c. Triangle matrix d. Symmetric matrix e. S kew symmetric matrix	Demonstrate the concept of triangle and relate with matrix through examples	What is triangle? What is transpose?	Q#1 Q#2 Q#3 Q#4	
		Elementary Row and column operations on a matrix.	Students will be able to calculate..... a) Elementary row operations b) Elementary column operations.	Demonstration and lecture method to make the student clear about “row operation” & “column operation” with the help of definitions and examples given in text book.	What is row operation? What is column operation?		
		Echelon and reduced echlon forms of matrices	a) Echelon form of a matrix.... Or (row) echelon form..... b) Reduce) Echelon form of matrix..... c) Or (row) reduced echelon form....	Demonstration and lecture method with the concept of “row operation” and elementary Column operation with help of examples	Operation Row/ column	Q#5 (i) & (ii) lii, (iv)	
		Inverse and rank of matrices upto order 3 by means of reduced echelon form....	Inverse of a matrix	Concept of a non singular matrix And row and column operations	What is singular matrix? What is non singular matrix. How to calculate determinant?	Q#6	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			Rank of a matrix "concept of a reduced echelon form of a matrix"	Demonstration lecture method with the concept of "row/column operations" Reduced (row) echelon form of a matrix.... Through examples.	What do you mean by echelon form?	Q#7 (i) ,(ii)	
		System of linear equations	Students will be able to know about <ul style="list-style-type: none"> • Homogenous equation • Non homogeneous equation • Trivial (or zero) solution • Non trivial (non-Zero) solution of a system • Augmented matrix. 	Demonstration and lecture method..... to make them understand through solved example.	What do you mean by homogeneous equation?	Learning by heart.	
		Consistency and inconsistency of a system	Students will be able to know <ol style="list-style-type: none"> a) System has a "unique" or only one solution OR infinity many solutions (consistency) b) System has no solution 		What do you mean by row operation and how to find?		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

[illegible]

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			simply matrix method to find the values of unknown variables involved.				
			a) Gauss elimination method (Echelon form) it's the echelon form to calculate the value of unknown variables involved b) Gauss jargon (reduced echelon form) it's the technique to calculate the value of a unknown variable by reduced echelon form. c) Student will be able to use Cramer's rule to solve the non homogeneous equation to calculate the value of unknown variable here the	Demonstration and lecture with the previous knowledge i.e. echelon form & reduce Echelon form.	What do you mean by Echelon form of a matrix? What do you mean by reduced Echelon form of a matrix?	Q#2 (i & ii) Q#2 (i) & (ii)	
1)		Vectors introduction	1: Define vector, scalar, unit, magnitude.	1: Wrote the name of the topic on the black board	1: What is vector?	Ex. 3.1 Q no. 01	
				calculate the determinants of a matrix to find the value of unknown variables.	How to find determinant of a matrix 2×2 .	Q# 3 (i) and (ii)	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		Unit 3	2: Explain graphical and symbolic representation of vector.	board. 2: Define and explain the vector, scalar and its properties. 3: Solve the rectangular exponents.	2: What is the mathematical expression of vector? 3: How many components of a vector? 4: Define unit vector.	Qno.03	
2)		3.2 Geometrical representation of a vector. 3.3 Addition and subtraction of a vector.	1: Able to draw a vector in graphical form. 2: Able to know about equal vector, negative vector, zero or multiple vector, unit vector, multiplication of a vector, parallel vector, positive vector. 3: Able to subtract and add different vectors.	1: Write the name of the topic on the black board. 2: Define and draw equal, negative vector etc. 3: express about the addition and subtraction of vectors.	1: What is negative vector? 2: What are parallel vectors? Ex: Q no.06	Q no. 04 Q no. 05	
3)		3.3.2 Properties of vector addition. 3.3.3 Subtraction of two vectors.	1: Know about Head-to-Tail rule and parallelogram law of addition. 2: Able to understand how to subtract two vectors	1: Write the name of the topic on the black board. 2: Solve the properties of vector of addition. 3: Explain subtraction of two vectors.	1: What is cumulative law? 2: What is versocilative law? 3: How to subtract two vectors?	Q no. 02 Q no. 07 Q no. 08	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
4)		Vector in plane	1: Define exponent of a vector. 2: Vector with initial point not at the origin.			Q no. 01 – 05	
5)		Algebra of vectors	1: Equal vectors. 2: Addition of vectors. 3: Scalar multiplication. 4: Negative of a vector. 5: Subtraction of a vector. 6: Zero or null vector.	1: Write the topic on the white board. 2: Go through the definitions given in the book with solved examples.	1: What are equal vectors? 2: What is a null vector? 3: What is distributive property? 4: What is inverse for a vector? 5: What is norm?		
6)		3.5.1 Properties of vectors.	1: Able to know all the properties of vectors (1 to 8) 2: Magnitude of a vector. 3: Properties of magnitude of a vector (1 to 5)	Example 3.5.3 Example 3.6.1			
7)		3.6 A unit vector in the direction of another vector.	1: Define unit vector and its notation. 2: Will be able to solve related questions.	(Same)	1: What is a unit vector? 2: What do you mean by rectangular coordinate system?	Q no. 06 to 08	
8)		3.7 Notation for vectors in coordinate systems.	What are coordinates of a vector.	Example 3.8.1	What is a ratio theorem?	Q no. 10 to 12	
9)		3.8 Application to geometry.	1: Theorem 3.8.1 2: Theorem 3.8.2		Q no. 09		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			3: Theorem 3.8.3				
10)		3.9 Vectors in space.	1: Able to describe vector in space. 2: 3.9.1 Vector in three dimensional space. 3: Component of a vector. 4: Definition.		1: What do you mean by position vector? 2: What are the components of a vector?	Exercise 3.3 Q no. 01 Q no. 03 Q no. 04 Q no. 05 Q no. 06	
11)		Algebra of vectors	1: Able to know equal vectors. 2: Addition of vectors. 3: Scalar multiplication. 4: Negative of a vector. 5: Subtraction of a vector. 6: Zero or null vector. 7: Magnitude of a vector. 8: Unit vector.	Example 3.9.1	1: What is a negative of a vector? 2: What is the magnitude of a vector? 3: How to calculate the magnitude of a vector?		
12)		3.11 Notation for vectors in coordinate system	1: Able to know about vector notation in coordinate system. 2: To calculate. 3: Direction angles. 4: Direction cosines of vectors.	Example 3.12.1 Example 3.12.2 Example 3.12.3	1: What are direction angles? 2: What are direction cosines? 3: What are direction ratios?		
13)		3.12 Direction angles and direction cosines of vectors	1: Theorem 3.12 2: Direction numbers of direction ratios.		Example 3.12.4		
14)		3.13 Collinear and	1: Able to know		1: What do you	Q no. 02	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		coplanar vectors	definition of collinear and coplanar vectors. 2: Theorem on non collinear vectors Theorem 3.13.1 Theorem 3.13.2 Theorem 3.13.3		mean by collinear vectors? 2: What are coplanar?	Q no. 09 Q no. 10 Q no. 11 Q no. 12 Q no. 13	
15)		3.14 Application to geometry	1: 14.1 Able to know how to calculate difference between two points in space. 2: Theorem 3.14.1 3: Theorem 3.14.2	Example 3.14.1	1: What is distance formula? 2: What is centroid of a triangle?		
16)		3.15 Product of vectors	1: Able to know dot or scalar product and cross or vector product. 2: 3.15.1 immediate consequences of the definition of dot product. 3: Parallel vectors. 4: Perpendicular vectors. 5: 3.16 Expression of dot product in terms of components. 6: 3.17 Properties of dot product. 7: Theorem 3.17.		1: Define dot product. 2: What are parallel vectors? 3: What is the 1 st property of dot product? 4: What is distributive over addition of dot product?	Exercise 3.4 Q no. 1 to 4	
17)		3.18 Angle between vectors. 3.19 Projection of one vector on another.	1: Able to find the angle between two vectors (1 to 3). 2: Calculate the	1: Example 3.18.1 2: Example 3.18.2	Exercise 3.4 Q no. 8 (a & b) Q no. 10 & 11	Q no. 5, 6, 7, 9, & 12	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		3.20 Work done by a constant force.	projection of vectors. 3: Calculate the relation.	3: Example 3.19.1 4: Example 3.20.1			
18)		3.21 The cross or vector product and its application.	1: Students will be able to know product of two vectors. 2: Application of vector. 3: Product to solve the related problems i.e 3.21.1 (1, 2, 3) 4: 3.22 Able to know about cross product in term of components and its properties.	1: Theorem 3.23.1 2: Example 3.23.1 3: Example 3.23.2 (1, 2, 3)	1: What are components of a vector? 2: How to find cross product of two vectors? 3: Exercise 3.5 Q no. 1		
19)		Application of geometry	Students will be able to calculate the following: 1: Area of parallelogram. 2: Area of triangle. 3: Moment of force.	1: Lecture and writing board by explaining all the related theorems given in text book. 2: Theorem 3.24.1 & 3.24.2 3: Example 3.24.1 & 3.25.1	1: What is a formula to calculate the area of a parallelogram? 2: Formula for area of a triangle. 3: What do you mean by moment of force?	Q no. 6, 7, 8, 9	
20)		Scalar triple product of a vector	1: Express scalar triple product in terms of components. 2: Volume of a parallelepiped. 3: Volume of a tetrahedron. 4: 3.99 Properties of a triple product.	Theorem 3.27.1 Theorem 3.27.2 Theorem 3.27.3 Example 3.29.1 Example 3.29.2 Example 3.29.3	1: What is triple product? 2: Exercise 3.6 Q no. 2, 4, 9 (a)	Q no. 5, 8, 9 (b)	
1		Sequences	Students will be able to	Demonstration	• What do	Ex: 4.1	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		Unit 4	know <ul style="list-style-type: none"> ➤ What is a sequence and its terms. ➤ What is triangle? ➤ What is factorial? ➤ What are Pascal sequences? ➤ What do you mean by series? 	lecture method to make them understand and previous knowledge through examples given in text books.	you mean by natural number? 1. Even numbers? 2. Odd numbers? • What is triangle? • What do you mean by multiple of any numbers? • What do you mean by factor? • How to find sum?		
2		Arithmetic sequence	Students will be able to know Definition of A Series and to find to find its general term or the nth term (concept of common difference)	Demonstration and lecture method through examples given in book.	Sequence? Difference?	Ex: 4.2	
3		Arithmetic mean (A.M)	Students will be able to calculate arithmetic mean of two number through the concept of A	Demonstration lecture method through solved examples given in book Q # 3	Average? What you do mean by average of any two numbers?	Q Ex: 4.3	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			sequence. Intensity "n" arithmetic means (A.Ms) (concept of arithmetic sequence)		Average of "n" numbers. What is arithmetic sequence?		
4		Arithmetic series...	Students will be able to know.... Arithmetic series with the concept of arithmetic sequence Sum of first "n" terms of an arithmetic sequence (by formula)	Demonstration lecture method through solved example given in book. Demonstration lecture method to find "n" terms (solved Example"	Sum? Series? What you do mean by c.d (common difference) What is nth term or a general term of an arithmetic sequence?	Ex: 4.4	
5		Geometric sequence	Students will be able to know ➤ What is a geometric sequence ➤ They will be able to know about common ratio ➤ The nth term of a G sequence	Demonstration lecture method to..... demonstrate the G sequence and related Examples Given in book.	What is a sequence? What C.d? What is a nth term?	Ex: 4.5 Q#1 to 6	
6		Continues		Related examples		7- 12	
7		Geometric means (G.Ms)	What is Geometric mean (G.M)? Geometric of two numbers.	Go through all the solved examples to make them clear geometric mean.....	What is mean? What is A.M?	Ex: 4.6	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			To insert “n” geometric means between two numbers “a” and “b”	Through solved examples to clear their concepts.	What is nth term of G-sequence?		
8		Geometric series	Students will be able to know <ul style="list-style-type: none"> ➤ Geometric series ➤ What is the nth term of a G-series ➤ How to complete the sum of n terms of a G-series. 	Demonstration do	What do you mean by series? What nth term of G-sequence? What is common ratio?	Ex: 4.7 Q# 1 (a) to (d) Q# 2 (i) to (ii) Q# 3 Q# 4 Q#5	
		Continue	Or finite G-series by formula depends on common ratio i.e $ a \geq 1$ or $ a < 1$	//	Related	Ex: 4.7 Q#6 # 7 Q#8	
9		Infinite G. Series	Infinite G series How to find sum of infinite G-series by formula.		What is finite? What is infinite?	Ex:4.8 Q# 1 (i) to (iv) Q#2 (i) to (ii) Q#3 Q#5 Q#7	
10		Recurring decimals	Students will be <ul style="list-style-type: none"> • Able to know about • Recurring decimals • To find the sum of infinite recurring decimals 	Through demonstration go through examples in book.	<ul style="list-style-type: none"> • What do you mean by recurring decimals? • What is non recurring decimals? 	Q#4 (i) to (iv) Q# 6	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
11		Word problem		D ^o Example 4.7.9 for the students	Assist students to do the relevant questions under supervision (word Problem) Q#10 Q# 11 Q#12 Q#13 Q#14	Practice the whole exercise.	
12		Harmonic sequence	Student will be able to know about.... <ul style="list-style-type: none"> Harmonic sequence and general term or the nth term of a harmonic sequence 	Demonstration and lecture method to make them clear..... Through examples and previous knowledge	What is arithmetic sequence? Common difference? Reciprocal?	Ex: 4.9	
		Harmonic means (H.Ms)	They will be able to calculate <ul style="list-style-type: none"> ➤ Harmonic means between two numbers ➤ Harmonic means formula ➤ "n" harmonic means b/w a and b. Geometric and harmonic means	// //	What is A.M? Harmonic means?		
1		Miscellaneous series Unit 5	Student will be able to know in this unit <ul style="list-style-type: none"> Know sigma (Σ) sign and evaluation of Σn, Σn^3 	Demonstration and lecture method to make students clear..... Go through examples.	What do you mean by sum of numbers? What do you mean by series? OR A series	Ex: 5.1 Q# 1 to 6	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			i.e i. Natural numbers ii. Sequence of natural numbers iii. Cubes of natural numbers How to calculate the sum of series of n terms by using Σ technique.			Q# 7 to 13.	
2		Continue		Revision of related material			
3		Arithmetical – Geometrical series	Students will be able to calculate Arithmetic geometrical series Definition and its mathematical term Nth term of arithmetical-Geometrical series Sum of n terms of arithmetical- geometrical series Students will be able to calculate Sum of infinity of arithmetical- geometric series.	Demonstration and lecture method through previous knowledge and solved examples Previous knowledge and examples.	What is arithmetic series? What is geometric series. Nth term of arithmetic series Nth term of geometric series. Sum of n term of arithmetic series Sum of “n” term of geometric series What is infinite series?	Ex: 5.2 Q# 1 to 6 Q#7 to 10	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
1		Method of differences	Students will be able to know Method of differences $\sum ur$; ur is a function of r A series each term having " r " factors in A.P "A technique to sum the series" Note: here the common difference must be sum in each term of series.	Demonstration and lecture method previous knowledge and solved examples.	Difference / rate of change? What is A.P? What is C.d? What is the n th term or the general term of A.P.	Ex: 5.3 Q#1 Q#4 Q#5	
2		Reciprocal series	Student will be able to solve sum of the reciprocal series (A series each term having " r " factors in A.P)		What is reciprocal? Nth term of A.P?	Q#2 Q#3 Q#6 Q#7 Q#10 Q#8 & Q#9 in class	
1		Summation of series by partial fractions	Students will calculate the sum of series by a technique Partial fractions	Demonstration through examples.	 Nth term of an A.P?	Ex:5.4 Q#1 to 8	
1)		The principle of mathematical induction Unit 7	1: Will be able to know the conditions of the principle of mathematical induction, 2: Apply the principle to prove the statement identities or formulae.	1: Write the name of the topic on the writing board. 2: Brief introduction about topic. 3: Solve the given examples.	1: What do you know about the principle of mathematical induction? 2: How many conditions of principle of mathematical	Exercise 7.1 Q no. 01 to 16	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
				4: Make group to solve the next example from book.	induction? 3: Tell the first condition. 4: Tell the second condition.		
2)		General (extended) form of principle of mathematical induction.	1: Able to understand the general form of principle of mathematical induction. 2: Know this general statement is false for $n=1$ and $n=2$ but it is true for all values of $n=z$	1: Brief introduction about principle. 2: Solve the general form of principle on writing board to clear the students. 3: Solve the example 7.3.1 and 7.3.2	1: What general (extended) formula? 2: What are its conditions? 3: Solve 17 (1, 2, 3)	Q no. 18 (1 & 2) Q no. 19 (1 & 2)	
3)		The binomial theorem.	1: Will be able to know State and prove binomial theorem for positive integral index.	1: Brief the statement. 2: Solve the proof on writing board by mathematical induction. 3: Example 7.4.1	Example 7.4.2	Exercise 7.2 Q no. 01 to 05 Q no. 05 (1 to 3)	
4)		Pascal's triangle	1: Pascal's triangle and its use to obtain the coefficients of the binomial expansion $(x+y)^n$; n is a small number.	1: Briefly discuss Pascal's triangle through the explanation 7.5 given in the book. 2: Solve example 7.5.2	1: What is Pascal's triangle? 2: How to calculate Pascal's triangle? 3: Give any example	1: Practice Pascal's triangle. 2: And relevant example at home (7.5)	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
				to clear the concepts.	to the students for practice like 7.5		
5)		General term of binomial theorem	Will be able to know general term and its notation or formula to calculate some specific term like 6 th term or 9 th term etc.	Remind the students previous knowledge i.e. for calculating general term and solve example 7.5.2	1: What is general term of binomial expansion? 2: How to calculate general term? Q no. 2 (1)	Q no. 02 (1 to 3)	
6)		Properties of binomial expansion	1: Will be able to know the properties of binomial expansion 1 to 4 2: Will be able to know the remaining properties 5 to 7	1: Briefly discuss all the properties of binomial one by one by statements 2: Briefly discuss the remaining properties through given statement	1: How many terms in the expansion of $(a+b)^n$? 2: How many middle terms if n is even? 3: How many middle terms if n is odd? 4: How to find the middle term if "n" is even? 5: How to find the middle term if "n" is odd? 6: What is general term? 7: How to find general term?	Oral learning by heart	
7)		Binomial series	1: Will be able to know binomial series when the exponent is negative integer or a fraction 2: Will be able to find	1: Explain briefly binomial theorem solving its mathematical form and related example 7.6.1, 7.6.3 & 7.6.5	Example 7.6.2 Example 7.6.4 Example 7.6.5 (2)	Ex: 7.3 Q no. 1 to 10 Q no. 11 (3) & (4) to Q no. 16	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			summation by the use of binomial series	2: Recall the mathematical form of series 3: Example 7.7.1 and 7.7.2	Q no. 11 (1) & (2)		
8)		Co-efficient of binomial expansion	1: Will be able to know how to calculate the co-efficient of X^n , n is any positive number – through the general term formula concept 2: Independent term	1: Discuss through lecture and writing board solve the example 7.5.3 to calculate the co-efficient of X^5 2: Also give the concept of independent term for X example 7.5.4	3 (1) Q no. 04 (1)	Q no. 03 (2) & (3) Q no. 04 (2) & (3)	
9)		Middle term	Able to find the middle term	Through example 7.5.5		Q no. 02	

1)		Functions and graphs Unit 8	1: Able to know complete introduction about function 2: Function as a rule or correspondence 3: Domain and range of a function 4: Types of functions (one to one and on to function)	1: Lecture by discussing the definition its symbol and how to solve domain and range of a function Through solved examples: 8.3.1 8.4.1	1: What is a function? 2: What is domain of a function? 3: What is range of a function? 4: What is one-one function? 5: What is on to function? 6: What is in to function?	Q no. 01 to 05	
----	--	---	---	--	---	----------------	--

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
				8.4.2	7: What is injective?		
2)		Kinds of functions	Able to know all kinds of functions given in text book.	By lecture and writing board discuss all the kinds and related material one by one example 8.5.1	Example 8.5.2	Q no. 06	
3)		Inverse function	1: Able to find inverse function domain and range 2: Algebraic method for finding inverse function	1: Writing board and lecture on inverse function 2: Example 8.7.1 3: Example 8.7.2	1: How to find inverse function? 2: (Steps) ? 3: Example 8.7.3	Q no. 07 to 09	
4)		Graphical representation of functions	1: Will be able to sketch the graph of the function X^n for different value of n i.e. (Linear / Quadratic / Cubic) 2: Predict functions from their graph	1: Brief discussion about linear function and graph through example 8.9.1 2: Same for non linear example 8.10.1 3: Give clear concept of graph through examples	Example 8.9.2 Example 8.10.2 Example 8.10.3	Ex: 8.2 Q no. 01, 02 & 04	
5)		Intercepts and symmetry	Able to know: 1: Intercepts 2: Symmetry	Briefly discuss the examples and definitions through lecture	1: What is x-intercept? 2: What is y-intercept? 3: How many types of symmetry? 4: Symmetry –w-r to x-axis? 5: Symmetry –w-r to	Q no. 03	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
					y-axis? 6: Symmetry –w-r to origin?		
6)		Graph of $y=x^n$ where $n = z$	Able to sketch the graph of $y=x^n$, $n=z$	Lecture on the material given in book	Solve 4	Practice and practice at home	
7)		Graph of $y=x^n$; $n=Q$	Able to sketch the graph $y=x^n$; $n=Q$	Lecture on the material given in book	Solve 2 and 4		
8)		Graph of quadratic functions	Able to sketch: 1: Graph of quadratic 2: General quadratic functions	Lecture briefly on given material related with topic and go through the example 8.13.3	Example 8.13.4	Learn by heart	
9)		Using factors to sketch graphs	Students will be able to sketch the graphs by using factors	Briefly discuss by lecture method Example 8.14.1	Example 8.14.2	Ex: 8.3 Q no. 01 Q no. 02	
10)		Predicting functions from their graphs	Will be able to predict about functions by just seeing at graph	Same strategy Example 8.15.1	Example 8.15.2		
11)		Intersecting graphs	1: Point of intersection of a linear function and coordinate axis 2: Point of intersection of two linear functions 3: Point of intersection of a linear and a quadratic function	Lecture method: 1: Example 8.16.1 2: Example 8.16.2 3: Example 8.16.3	1: What is point of intersection? 2: Linear function? 3: Quadratic function? 4: How to calculate point of intersection	Q no. 03 to 07	
12)		Daily life	Will be able to sketch the	Briefly discussion		Get preparation at	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			graphs of problem from daily life	on problems given in text book Example 8.16.4 Example 8.16.5	Q no. 08 Q no. 09	home of whole chapter and find difficulties	
1		Linear programming Unit 9	Will be able <ul style="list-style-type: none"> Definition of linear programming (LP) as planning of allocation of limited resources to obtain optional result. Linear inequalities Linear inequalities in one variable Linear inequalities in two variables 	Lecture method to give complete introduction about the topic through definition and solved examples Example 9.2.1 Ex: 9.2.3	<ul style="list-style-type: none"> Definition linear programming ? What do you mean by linear inequalities Inequalities? Inequalities in one variable? Example 9.2.2	Ex:9.1 Q#1	
2		Graphing inequalities in two variables:	<ul style="list-style-type: none"> Able to sketch graph of inequalities in two variables Procedure for graphing or linear inequality in two variables. 	Brief discussion about graphing of inequalities by lecture method and solved examples should be discussed Example 9.2.4 Example 9.2.5	<ul style="list-style-type: none"> What is half plane? What is boundary? Closed half plane? What are the steps for graphing inequalities in two variables? 	Q#2	
3		Region bounded of 2 or 3	Will be able to sketch the graph of a system of linear	Lecture W board	What is a system of linear inequalities?	Q#3 to 6	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		simultaneous inequalities	inequalities in two variables	Example 9.2.6 Example 9.2.7 Example 9.2.8	What is a solution region? What are corner points or vertices? What is bounded region? What is inbounded region?		
4		Feasible solution det	Able to Feasible region and identification of feasible region and related inequalities to sketch.....	Lecture writing board Example 9.3.1 Example 9.3.2	What are problem constrains? Decision non negative constrains? Feasible region? Feasible solution? Feasible solution set?	Ex: 9.2	
5		Linear programming	Will be able to find the <ul style="list-style-type: none"> Minimum or maximum value of a linear function in two variable Fundamental theorem of linear programming Procedure for determining optional solution 	Through lecture method and writing board briefly linear programming and fundamental theorem of linear programming Example 9.4.1 Example 9.4.2	How to find maximum value? How to find minimum value? Optional solution? How to find optional or objective function?	Ex: 9.3 Q# 1 to 5	
6		Linear programming problems	Will be able to solve the daily life problems first by converting into mathematical form and	Go through the example# 9.4.3 Example 9.4.4	Calculate corner points from any example given by teacher and then	Q# 6 to 8	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			them objective functions		sketch the graph.		
1)		Trigonometric sums and differences Unit 10	1: Students will be able to know what is trigonometry 2: Brief introduction distance formula	Lecture method brief discussion through previous knowledge and given mathematical form 10.2	1: What does trigonometry means? 2: How to calculate the difference between two points?	Practice at home	
2)		Fundamental law of trigonometry	Will be able to calculate basic fundamental law	Elaborate mathematical form 10.3 on writing board	What is the fundamental formula	Practice at home	
3)		Deduction	Able to calculate the other fundamental law from the basic formula	From basic and previous knowledge students will be able to calculate other formula by themselves	1: Cos 2: Sin 3: Cos 4: Sin 5: Sin 6: Cos 7: tan	Ex: 10.3 Q no. 02, 04 Q no. 06, 07 (3)	
4)		Allied Angles	Able to know how to calculate the allied angles	1: Make the students to derive the allied angles 2: Make group to help 3: Example 10.4.1	What is allied? Sin Cos Example (10.4.2)	Learn by heart the allied angles Q no. 01 Q no. 07 (1 & 2) Q no. 09	
5)		Allied Angles	1: Revision of previous topic 2: Will be able to calculate a Sin + b Cos in the form of Y Sin (+)	Go through example 10.4.3, 10.4.4 & 10.4.5 Lecture through writing board mathematical form 10.4.2	Exercise Q no. 04 (1) Q no. 03 (1)	Q no. 04 (2 & 3) Q no. 03 (2) Q no. 08 & 10	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
				Example 10.4.6			
6)		Double/Half angle	Will be able to calculate double and half angle from fundamental law and its deduction	1: Elaborate double and half angle through examples and mathematical formula given in text book 2: Example 10.5.1 (1 & 2)	Sin (2x)= ? Cos (2x) = ?	Q no. 01 to 09 Q no. 14, 18 & 19	
7)		Triple angle identities	Triple angle and related examples	1: Lecture and writing board mathematical calculation 2: Example 10.5.2 3: Example 10.5.3	Q no. 05 Q no. 20	Q no. 09, 10, 12, 13, 15, 16 & 17	
8)		Converting product to sums or differences	Will be able to know how to convert product into sum or into differences	1: By the use of writing board explain the given forms of products into sum or difference 2: Example 10.6.1 3: Example 10.6.3 or give to students	Example 10.6.2	Q no. 01 Q no. 11	
9)		Converting sum/difference into products	1: Able to know how to convert sum or differences into products 2: Able to solve related questions know the sum to product formulas	1: Explain all the forms of sum/difference into product 2: Example 10.7.1 3: Example 10.7.3	Example 10.7.2 Example 10.7.4	Q no. 02 to 10	
1)		Application of	1: Students will be able to	Lecture and	1: Define term		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		trigonometry, Introduction Unit 11	know about complete introduction and meaning of trigonometry 2: Solution of right angled triangles a: When measure of two sides are given b: When measure of one angle and one side are given	writing board Go through solved examples: 11.2.1 11.2.2	trigonometry 2: How many elements of a triangle? 3: What is a right angled triangle? Exercise 11.1 Q no. 01		
2)		Application to right-angled triangles	1: Able to know about angle of elevation 2: Angle of depression and how to calculate related problems	1: Briefly discussion of topic 2: Solved examples: 11.3.1, 11.3.2, 11.3.3	1: What is angle of elevation? 2: What is angle of depression? Ex: 11.2 Q no. 01 & 02		
3)		Oblique triangles	1: Able to know about oblique triangles and its possibility through special tools i.e. law of cosines, the law of sines and the law of tangents 2: The law of cosines and its two cases	1: Lecture/writing board will be took to make students understand about topic of the day 2: Case 1 and 2 as an example should be discussed	1: What is an oblique triangle? 2: What is an acute angled triangle? 3: What is an obtuse angled triangle?		
4)			Able to calculate the other possibilities a: (SSS) b: (SAS)	Lecture / writing board Example 11.5.1 Example 11.5.2	Q no. 01 Q no. 11		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			c: (AAA)	Example 11.5.3 Example 11.5.4			
5)		The law of sines	1: Will be able to solve the oblique triangle through law of sines (where cosines fails) 2: Theorem of law of sines 11.6.1	1: Briefly discuss the law of sines 2: Theorem 11.6.1 Example 11.6.1 Example 11.6.2 Example 11.6.3	1: What is law of sines? 2: Why we use law of sines? Ex: 11.4 Q no. 01 Q no. 09, Q no. 10		
6)		The law of tangents	1: To solve oblique triangles by law of tangents (Theorem 11.7.1) 2: Able to solve the triangle through half formula a: Consine of half the angle in terms of sides b: The sines of half the angle in terms of sides Theorem 11.8.2 c: The tangent of half the angle in terms of sides Theorem 11.8.3	1: Briefly explain the theorem 11.7.1 and its mathematical notation (proof) Example 11.7.1 2: Briefly explain half angle 3: Briefly explain theorem 11.8.2 on writing board Theorem 11.8.3	1: What is the law of tangent? 2: When we use law of tangent? 3: Ex: 11.5 Q no. 01 4: What is consine of half the angle? 5: When to apply? Example 11.8.1 Ex: 11.5 Q no. 06 and 09		
7)		Areas of a triangular regions	1: Students will be able to know area 2: How to calculate the area of any triangular region 3: Able to know area of a triangle a: When two sides and their included angle is	Brief explanation of two cases through lecture and writing board Brief discussion on topic Example 11.9.1 Example 11.9.2	Ex: 11.6 Q no. 01 & 03 What is hero's formula? Example 11.9.3		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			given (SAS) b: When the side and two angles are given (SAA) c: Area of a triangle when measure of all sides given		Example 11.9.4		
8)		Circle connected with triangles	Students will be able to know: 1: Circumcircle 2: Incircle 3: Escribed	Go through the definition Lecture / writing board will be helpful	1: What is circumcircle? 2: What is circumcentre? 3: What is incircle? 4: What is incentre? 5: What is ex-circle?		
9)		To find circum-radius for any $\triangle ABC$	1: To find R, The circum-radius of $\triangle ABC$ in terms of measures of a side and its opposite angle 2: Will be able to find circum-radius in terms of the measurements of sides of a triangle	1: Go through the explanation given in the book 2: Brief to the students Example 11.11.1	1: How to find R = ? 2: How to find parameter of $\triangle ABC$? 3: How to calculate area of a $\triangle ABC$?		
10)		To find inradius for any $\triangle ABC$	Students will be able to calculate inradius "r" for any $\triangle ABC$ To find the radius of e-circle of a triangle	Example 11.12.1 Example 11.12.2 Go through explanation given through lecture and writing board Example 11.13.1 Example 11.13.2 Example 11.13.3	1: What is r1? 2: What is r2? 3: What is r3?		
1)		Graph of trigonometric and	Students will be able to know definition of a	Teacher will write the topic on the	1: What do you mean by the trigonometric		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		inverse trigonometric functions Unit 12	trigonometric functions and their domain and range (Sin, Cosine, Tangent and cotangent and their inverse functions)	writing board and go through all the material and solved examples given in the book. Example 12.3.1 (1 & 2) Example 12.3.2 (1 & 3)	function? 2: Domain of tan ? 3: Range of cos ? 4: What is a unit circle? Example 12.3.1 (2) Example 12.3.2 (2)	Ex: 12.1	
2)			Able to define periodic even/odd and translation properties	Go through definitions and examples given in the book Example 12.4.1 (1 & 2)	1: What is a period? 2: How to calculate the period of Cos/Sin / tan and their inverses? Example 12.4.1 (3)	Ex: 12.2 Q no. 01 to 06	
3)			Able to solve the questions related with periodicity of trigonometric functions	Example 12.5.1 Example 12.5.3	Example 12.5.2	Ex: 12.2 Q no. 07 to 16	
4)		Graph of trigonometric functions	Able to draw the graph of trigonometric function i.e. 1: $y = \sin x$; $0 < x < 2\pi$ 2: $y = \cos x$; $0 < x < 2\pi$ 3: $y = \tan x$; $0 < x < \pi$	Write the name of the topic on writing board and go through the explanations given in the text book i.e. 1: 12.6.1 2: 12.6.2	Draw the graph of $\tan x$ 12.6.3	Ex: 12.3 Q no. 01 to 06	
5)			Able to sketch the graph of: 1: $y = \cot x$ 2: $y = \sec x$ 3: $y = \csc x$	Go through the explanations given in the text book 1: 12.6.4	12.6.6	Q no. 07 to 10	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
				2: 12.6.5			
6)		12.7 Graph of a function	Will be able to sketch of a type: 1: Sin A 2: Cos A Where A is a positive constant	Write the topic on writing board and go through the explanation Example 12.7.1	1: What is a period? 2: What is amplitude? Ex: 12.4 Q no. 01 (1)	Ex: 12.4 Q no. 01 (2, 3, 4)	
7)		12.8 Period even/odd and translation properties	1: Symmetry properties of the graph of Sin/Cos/tan 2: Periodic properties 3: Even/odd properties 4: Translation property	Example 12.8.1	Q no. 02 (1 & 2)	Q no. 02 (3 to 7) Q no. 03 (1 to 6)	
8)		12.8.1 Maximum and minimum values of certain trigonometric functions	Able to find the maximum and minimum values of functions of the types: 1: $a+b \sin$ 2: $a+b \cos$ 3: $a+b \sin ()$ 4: $a+b \cos ()$	Example 12.8.2 (1, 2)	1: How to calculate the maximum value? 2: How to find the minimum value? Example 12.8.2 (3)	Q no. 04	
9)		12.9 Solution/graphical solution of trigonometric equations	Able to deal with 10.10 solution of trigonometric functions of the type: Sin = Cos = Tan =	Explanation of 12.9 & 12.10 Example 12.10.1 Example 12.10.2 Example 12.10.3	Ex 12.5 Q no. 01 Q no. 08	Ex: 12.5 Q no. 02 to 07	
10)			(12.11) Graphical solution of some trigonometric equations	1: Explanation of the topic on writing board 2: Example 12.11.1 Verification of the original equation	What do you mean by solution of a function? Q no. 11	Ex: 12.5 Q no. 09 & 10 Q no. 12 to 14	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
11)		Inverse trigonometric functions and their graphs	1: Students will be able to know how to calculate the inverse of a trigonometric function and to draw their graphs 2: Able to do horizontal line test	Explanation of the topic Example 12.12.1 (1, 2, 3 & 4) Example 12.12.2	1: Define function. 2: What is vertical line test? 3: What is horizontal line test?	12.6 Q no. 01 to 03	
12)			1: Able to know inverse sine function 2: Definition of the above function 3: Inverse relation of general sine function	Go through the explanations given in the book Example 12.12.3 (1 & 2) Example 12.12.5 (1 & 2)	What is principal sine function? Example 12.12.4 (1, 2 & 3) Example 12.12.5 (3)	Do practice at home	
13)			1: Able to know the inverse cosine function 2: Definition with mathematical explanation	Example 12.12.6 (1 & 2) Example 12.12.7 (1, 2 & 3)	What is principal cosine function? Example 12.12.6 (3 & 4) Example 12.12.7 (4 & 5)	Q no. 04 (1) Q no. 05 (3)	
14)			The inverse tangent function 12.3 Definition of inverse tangent and mathematical explanation Able to know the remaining inverse trigonometric functions	Write the topic on writing board and go through explanations given in the book Example 12.12.8 (1 & 2) Example 12.12.9 (1 & 2)	1: What is principal tangent function? Example 12.12.8 2: What is principal cotangent function? Example 12.12.9 (3 & 4) 3: What is principal secant function? 4: What is principal cosecant function?	Q no. 04 (2 to 6)	
15)		Domain and ranges	To know about the domain	Draw the table on	1: Domain of sine?		

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		of trigonometric functions	and range of trigonometric function and inverse trigonometric function	the writing board to elaborate the domain and range Example 12.13.1 (1 & 2) Example 12.3.2 (1, 2, 3 & 4)	2: Domain of cosine? 3: Range of $\sec^{-1} x$? Example 12.12.3 (1, 2, 3 & 4)	Q no. 05 (01 to 06)	
16)		Trigonometric identities	Able to know 12.14 inverse trigonometric identities and their proofs	Go through the explanations step by step Examples 12.14.1, 12.14.2, 12.14.3, 12.14.5, 12.14.6	1: $\operatorname{Cosec}^{-1} x = ?$ 2: $\sec^{-1} x = ?$ 3: $\sin^{-1}(-x) = ?$ 4: $\cos^{-1}(-x) = ?$ 5: $\tan^{-1}(1/n) = ?$ Example 12.14.4	Exercise 12.7 Q no. 01 to 08	
17)		Algebra of an inverse trigonometric function	Addition and subtraction formula of inverse trigonometric function	Write the topic on writing board and explain all one by one Example 12.15.1 Example 12.15.2	1: $\sin^{-1} A + \sin^{-1} B = ?$ 2: $\sin^{-1} A - \sin^{-1} B = ?$ 3: $\cos^{-1} A + \cos^{-1} B = ?$ 4: $\cos^{-1} A - \cos^{-1} B = ?$ 5: $\tan^{-1} A + \tan^{-1} B = ?$ 6: $\tan^{-1} A - \tan^{-1} B = ?$	Q no. 09 to 12	
18)		12.16 Solution of general trigonometric equations	Able to know how to solve the general trigonometric equations	Write the topic on the writing board and give brief explanation	Ex: 12.8 Q no. 01 and 05	Ex: 12.8 Q no. 01 to 04 Q no. 06 to 10	
19)		12.17 Techniques for solving trigonometric equations	Able to solve trigonometric equations by: 1: Factorization 2: Using trigonometric identities 3: Using quadratic formula	Examples 12.17.1, 12.17.2, 12.17.4 & 12.17.5	How to check for extraneous roots? 12.17.3 What is quadratic equation? What is its formula? Q no. 14 & 17	Q no. 11 to 13 Q no. 15, 16 Q no. 18 to 24	
20)		12.18 A reduction	Able to know how to solve	Explanation of	How many solutions	Q no. 01 to 05	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
		identity	the equations by reduction identity	topic through example 12.18.1	of trigonometric equations?		
21)		12.19	Able to know trigonometric equations containing principal functions	Explain through the given material and example 12.19.1 (1)	Example 12.19.1 (2) Q no. 06 Q no. 12	Q no. 07 to 11 Q no. 13 to 15	
22)		Some applications of inverse trigonometric functions	Able to know: 1: Refraction 2: Meteorology	Definition and explanation Example 12.20.1 Example 12.20.2	1: What is refraction? 2: What is meteorology?	Q no. 16 to 18	
23)		Introduction and factorial of natural numbers	Able to know the factorial notation and its explanation	Explanation on writing board through given Example 6.1.1 Example 6.1.2 (1) Example 6.1.2 (2)	What do you mean by factorial? Ex: 6.1 Q no. 01 (5), 02 (2), 03 (1)	Ex: 6.1 Q no. 01 (1, 2, 3) Q no. 02 (1, 3, 4) Q no. 03 (2) Q no. 04 & 05	
24)		Multiplication principle	Able to know and will use multiplication by solving problems	Lecture method taking method from daily life Example: Tree diagram (two shirts and one trouser) Examples: 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5	What is the principle of counting? Ex: 6.2 Q no. 01 Q no. 02	Ex:6.2 Q no. 03 to 08	
		Permutation	1: Understand the concept of permutation 2: Application to solve the related problem	Through charts explaining possible arrangements of three letters A, B, C selecting two at	1: What is permutation? 2: What is permutation formula? a: Repeated b: non repeated	Ex.6.3 Q no. 01 (1, 3, 5) Q no. 02, 03, 06	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
				a time With repeated and non repeated elements by two different formulas Theorem 6.2.1 Examples: 6.2.6, 6.2.7, 6.2.8	elements Ex:6.3 Q no. 01 (2), 04 & 05		
			Example no. 6.2.9, 6.2.10, 6.2.11, 6.2.12	Ex: 6.3 Q no. 08 & 12	Q no. 07, 09, 10, 11		
		Combination	1: Definition 2: Know the formula 3: Application to solve the related problems	Through examples and charts (Arrangement of letters A, B, C) Theorems: 6.3.1 & 6.3.2 Examples: 6.3.1 & 6.3.3 Q no. 06, 08	Activity by making groups and assign them mixed questions of permutation and combination Ex: 6.4 Q no. 01 (1) Q no. 02 (1)	Ex: 6.4 Q no. 01 (2, 3) Q no. 02 (2) Q no. 03, 04, 05, 09, 10	
		Probability	1: Concept of probability 2: Sample space 3: Event and its types	Daily life examples (chance of passing/fart) To relate with sets covering all topics Example 6.4.1 Example 6.4.2 Q no. 01	Q no. 02	Q no. 03 to 05	
		Laws of probability	Able to know addition law for mutually and non mutually events	Through venn diagram Examples: 6.4.1, 6.4.2, 6.4.3, 6.4.4	What is addition law? Mutually Non mutually Q no. 04, 06	Ex: 6.6 Q no. 1, 2, 3, 5	
			1: Multiplication law for	Examples: 6.4.5,	Example 6.4.8	Q no. 07, 08, 09	

SCHEME OF WORK 2017-18

School:

Subject/ Class: Active Math 9th

Teacher Name

Date	Day	Learning Block	SLOs	Strategy	Assessment	Home work	Remarks
			dependent and independent events 2: Complementary events	6.4.6, 6.4.7			