Class 9 (Optional Mathematics)										
Annual Lesson Plan -2082										
Area	Topics	1 st term	2 nd term	3 rd term	4 th term					
Algebra	Order Pair	All								
	Cartesian Product	All								
	Relation	All								
	Function		All							
	Polynomials		All							
	Equation and inequality			All						
	Number system				all					
Limit	it Limit All									
tri	Types of matrices	All								
Ξ Ξ	Operations of matrices	All								
	Locus	All								
a s	Section Formula	All								
etry	Slope of a straight line									
rdir me	Slope intercept form		All							
000	Double intercept form		All							
00	Perpendicular form			all						
	Reduction of the given equation in the standard form				all					
nometry	Measurement of angles									
	Angular measurement in D and G	All								
	 System of circular measure 		all							
	Identities of T-ratio									
	Introduction of T-Ratio	all								
igo	Conversion of T-Ratio		all							
	T-ratio of standard angles			all						
	Complementary Angles			all						
	T-Ratio of any Angles				all					
	Introduction to vectors			All						
cto	Representation of vectors in co-ordinate and graph			All						
Ve	Operation on vectors			All						
	Magnitude and direction of vectors				All					
ma	Translation		All							
on	Reflection			All						
ans	Rotation				All					
Ĕ	Enlargement or Reduction				All					
	Partition Values	All								
tics	Q.D. and its coefficient	All				_				
atis	M.D. and its coefficient			All						
St	S.D. and its coefficient				All	_				
	Whisker Box plot				all					

S.N.	Contents	Working Hours	Knowledge 1marks	Understanding 2marks	Application 3marks	Higher Ability 4marks	Total No. of Questions	Total Marks
1.	Algebra	10	1	1	1	1	4	10
2.	Matrix	6	1	1	1		3	6
3.	Coordinate Geometry	9	2	1	1	1	5	11
4.	Trigonometry	13	2	2	3		7	15
5.	Statistics	4		1	2	X	3	8
	Total No. of Question		6	6	8	2	22	
	Weightage	42	6	12	24	8		50

First Terminal Examination

Second Terminal Examination

S.N.	Contents	Working Hours	Knowledge 1marks	Understanding 2marks	Application 3marks	Higher Ability 4marks	Total No. of Questions	Total Marks
1.	Algebra	10+12	1	1	1	1	4	10
2.	Matrix	6+8	1	1	1		3	6
3.	Coordinate Geometry	9+10	2	1	1	1	5	11
4.	Trigonometry	13+10	1	2	3		6	14
5.	Transformation	5	1		1		2	4
6.	Statistics	4		1	1		2	5
	Total No. of Question		6	6	8	2	22	
	Weightage	87	6	12	24	8		50

Third Terminal Examination

S.N.	Contents	Working	Knowledge	Understanding	Application	Higher	Total No.	Total
		Hours	1marks	2marks	3marks	Ability 4marks	of Questions	Marks
1	Algebra	22+6	2	2	2	1	7	16
		22.0	2	2	2	-	,	10
2.	Limit	8	1		1		2	4
3.	Matrix	14	1	1	1	C	3	6
4.	Coordinate Geometry	19+6	2	1	1	1	5	11
5.	Trigonometry	23+5	2	2	3		7	15
6.	Vectors	6	1	1		1	3	7
7.	Transformation	5+6	1		1	1	3	8
8.	Statistics	4+4		1	2		3	8
	Total No. of Question		6	6	8	2	33	
	Weightage	128	6	12	24	8		75

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Annual Examination

S.N.	Contents	Knowledge	edge Understanding Appli		Higher ability	ligher Total	
		1marks	2marks	3marks	4marks	Question	marks
1.	Algebra	2	2	2	1	7	16
2.	Limit	1	-	1	-	2	4
3.	Matrix	1	1	1	-	3	6
4.	Coordinate Geometry	2	1	1	1	5	11
5.	Trigonometry	2	2	3	-	7	15
6.	Vectors	1	1	-	1	3	7
7.	Transformations	1	-	1	1	3	8
8.	Statistics	-	1	2	-	3	8
	Total No. of Questions	10	8	11	4	33	-
	Total Marks	10	16	33	16		75

Internal Evaluation Scheme

S.N.	Criteria of internal Evaluation	Marks
1.	Participation (Attendance, Active Participation in Learning Activities)	3
2.	Practical and Project Works	16
3.	Terminal Examinations	6
	Total Marks	25

Note: The method of internal evaluation is same as in Compulsory Mathematics.

First Terminal Examination-2082

lass-9			-	Time	2hrs		F.M.:50		
ub: Op	otional Mathema	<u>atics</u>							
			(Grou	p-A		[6x1=6]		
1.	Define relation				50	4			
2.	Write down the order of matrix $\begin{bmatrix} 2 & 1 & 2 \\ 3 & 2 & 4 \\ 5 & 6 & 3 \end{bmatrix}$.								
3.	Write down the	e coo	rdina	tes c	of mic	dpoin	t of line segment having end points of line segment		
	(x_1, y_1) and (x_1, y_1)	$2, y_2$).						
4.	Define locus of	mov	ing p	oint.					
5.	Express $tan \theta$ ir	ו terr	ns of	sect	Э.				
6.	How many grad	des e	qual	to or	e rig	ht an	gles?		
	, .		. (Grou	o-B		[6x2=12]		
7.	For what value	s of r) and	q, (r) + 5	, q +	2) and (7,5) are equal to each other?		
8.	Construct a 2x2	2 mat	rix w	hose	elen	nents	is in the form of $a_{ii} = 3i - 2j$.		
9.	Find the coordinates of a point which divides the line joining the points $(1,2)$ and $(3,4)$ in the ratio 4:5 externally								
10.	Find the ratio o	of an	angle	s 48	^o and	80 ^g			
11	Prove that: $\frac{1+c}{c}$	osA _	- (co	seca	+ cc	$(tA)^2$			
11.	$1-c_0$	osA	42 -			ndin a	and an If its 50 th parametile is 20, find the value of v		
12.	12,17,2x+3,3x+	5,30,	,43 a	re in	ascer	naing	order. If its 50 th percentile is 29, find the value of x.		
40	(1.2.2)		(Jrou	0-C		[8x3=24]		
13.	Let $A = \{1, 2, 3\}$, exp	oress	the r	elatio	on <i>R</i>	$= \{(x, y): y = x^2\}$ on A by		
	I. Set of c	brder	ed pa	airs	II.	Tabu	lation method III. Arrow diagram		
14.	If A = B where A	4 = (x + y	, ,	$(\frac{1}{3}^{y})$	and	$B = \begin{pmatrix} 1 & 5 \\ 3 & 3 \end{pmatrix}$. Find the value of X and Y		
15.	Find the locus of	of a p	oint	whic	h mo	ves s	o that it is equidistant from the points $(4,3)$ and $(5,4)$.		
16.	Three angles of	a tri	angle	e are	$\left(\frac{20x}{9}\right)$	ג 8, ^g	x^{o} and $\left(\frac{\pi x}{75}\right)^{c}$. Find all angles in degrees.		
17.	Prove that: $\frac{tar}{t}$	$i\theta + sec$	$\frac{c\theta-1}{\theta+1}$	$=\frac{1+2}{2}$	sin0				
18	Prove that $(3 -$	10-sei - 2si	$\binom{n^2}{n^2}$	(2co	¹⁵⁰ t ² A -	- 3)	$= (1 + 3cot^2 \theta)(2 - 5sin^2 \theta)$		
19	Find the 50 th ne	ercer	tiles	from	the	follos	-(1+30000)(2+35000)		
15.	Wages (Ps)	25	1103	55	65	75			
	wages (NS)	33	45			//			
-	No. of workers	50	5/	85	15	30	_		
	NO. OF WORKERS	1 30	1 24	05	45				
20	Find quartile de	viati	ion ai	nd its	coet	ficie			
20.		10	12	1/	16	18			
	Age (III years)	10	12	14	10	10			
F	No. of people	6	10	16	23	5			
		ĺ							
L			(Grou	p-D		[2x4=8]		
21.	If $A = \{1, 2, 3\}, I$	$B = \frac{1}{2}$	{4,5}	and	C =	{6,7,	B}, then prove that the cartesian products $A \times (B \cup C) =$		
	$(A \times B) \cup (A \times B)$	< C)							
22.	Find the coordi	nate	s of t	he po	oints	of tri	section of the line segment joining the points $P(1,2)$ and		
	Q(4,2).			•					

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