

पु•ना International School Shree Swaminarayan Gurukul, Zundal

Date: 09/09/2020 (Wednesday) Time 3 hrs. Subject Maths Teacher's Sign. Image: Construction of the section of the second of the section of the section of the second of the section		HALF YEA	ARLY (202	í í		
Teacher's Sign.Total Marks80ieneral Instructions:(i) All the questions are compulsory.(ii) The question paper consists of 36 questions divided into 4 sections A, B, C, and D.(ii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section D comprises of 4 questions of 6 marks each.(iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 2 marks each, two questions of 6 marks each, two questions of 1 mark each, two questions of 6 marks each, two questions of 6 marks each, two questions of 6 marks each, two questions.(v) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 6 marks each, You have to attempt only one of the alternatives in all such questions.(v) Use of calculators is not permitted.Solve question 1 to 20 cach carry 1 mark eachSection - ASolve question R on the set {1,2,3} be defined by x fy \leftrightarrow IxI = y. Then, the correct option is a) (2 + i)f 3 b) 3 f(-3) c) If 1 d) (2 + 3i) f 13) If a relation R on the set {1,2,3} be defined by R = {(1,2)}, then R is a) Reflexive b) transitive c) Symmetric d) None of thesea) 1/2 b) -1,1/10 c) 1/6 d) None of thesea) 1/2 b) -1,1/10 c) 1/6 d) None of theseb) 1f A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A, B and C are respective a) 6.9,8 b) 6.9,6 c) 9.0,6 d) 6.6,9c) Total number of possible matrices of order 3*3 with each entry 2 or 0 isa) 9 b) 27 c) 81 d) 512	Student's Name:					
ieneral Instructions: (i) All the questions are compulsory. (ii) The question paper consists of 36 questions divided into 4 sections A, B, C, and D. (iii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each. (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \leftrightarrow IxI = y. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) $1f1$ d) $(2 + 3i)f13$) If a relation R on the set $\{1,2,3\}$ be defined by $R = \{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these) The value of tan ($\cos^{-1}3/5 + \tan^{-1}1/4$) is a) $19/8$ b) $8/19$ c) $19/12$ d) $3/4$) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9.8$ b) $6,9.6$ c) $9,6.6$ d) $6,6.9$) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	Date:	09/09/2020 (Wednesday)	Time	3 hrs.	• •	
() All the questions are compulsory. (i) The question paper consists of 36 questions divided into 4 sections A, B, C, and D. (ii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each. (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 2 marks each, two questions of 4 marks each, and two questions of 6 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Section - A Solve question 1 to 20 each earry 1 mark each 1) A relation f from C to R is defined by x fy \leftrightarrow IxI = y. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) $1f 1$ d) $(2 + 3i) f 13$ () If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these () The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) $1 $ b) $-1,1/10$ c) $1/6$ d) None of these () If A is a 3^*2 matrix, B is a 3^*3 matrix C is a 2^*3 matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,9$ () Total number of possible matrices of order 3^*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	Teacher's Sign.				I otal Marks	80
(i) The question paper consists of 36 questions divided into 4 sections A, B, C, and D. (ii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each. (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 2 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \Leftrightarrow lx1 = y. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) If 1 d) $(2 + 3i) f 13$ 1) A relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these 1) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) $19/8$ b) $8/19$ c) $19/12$ d) 3^4 b) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6.9.8$ b) $6.9.6$ c) $9.6.6$ d) $6.9.9$ c) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	General Instructions:					
C, and D. (iii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each. (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \Leftrightarrow $ x = y$. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) $1f 1$ d) $(2 + 3i) f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by $R = \{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these a) Reflexive b) $8/19$ c) $19/12$ d) 34 c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ c) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	(i)	All the questions are compu	lsory.			
(iii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each. (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \Leftrightarrow 1x1 = y. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) $1f 1$ d) $(2 + 3i) f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these 1) A relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) $k = 0$ (19/12 d) $\frac{3}{4}$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ c) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	(ii)	The question paper consists	of 36 que	stions divid	ed into 4 sections A	А, В,
of 6 questions of 2 marks each. Section C comprises of 6 questions of 4 marks each. Section D comprises of 4 questions of 6 marks each. (i) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 4 marks each, and two questions of 2 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \Leftrightarrow 1xl = y. Then, the correct option is a) $(2 + i)f 3$ b) $3 f(-3)$ c) $1 f 1$ d) $(2 + 3i) f 13$ (b) f a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these a) 1 b) $1 f 1/10$ c) $1 f 0$ d) $3 f - 3 = 2 f - 3 f 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f - 3 f - 3 = 2 f $		C, and D.			S	
mark's each. Section D comprises of 4 questions of 6 marks each. (iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 4 marks each, and two questions of 6 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \leftrightarrow IxI = y. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) $1f 1$ d) $(2 + 3i)f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these 1) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) $19/8$ b) $8/19$ c) $19/12$ d) $3/4$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ c) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	(iii)					
(iv) There is no overall choice. However, an internal choice has been provided in three questions of 1 mark each, two questions of 2 marks each, two questions of 4 marks each, and two questions of 6 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Section - A Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y \Leftrightarrow IxI = y. Then, the correct option is a) $(2 + i)f 3$ b) 3 f(-3) c) If 1 d) $(2 + 3i) f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these c) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) 19/8 b) 8/19 c) 19/12 d) ³ /4 c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) 7 total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512		-		-	-	of 4
in three questions of 1 mark each, two questions of 2 marks each, two questions of 4 marks each, and two questions of 6 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x fy \Leftrightarrow IxI = y. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) If 1 d) $(2 + 3i)f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these c) The value of tan (cos ⁻¹³ /5 + tan ⁻¹ 1/4) is a) 19/8 b) $8/19$ c) $19/12$ d) 3^4 c) If tan ⁻¹ 2x + tan ⁻¹ 3x + $\pi/4$, then x is equal to a) 1 b)-1,1/10 c) $1/6$ d) None of these c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512		-		-		:
questions of 4 marks each, and two questions of 6 marks each. You have to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Section - A Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x f y ↔ IxI = y. Then, the correct option is a) (2 + i)f 3 b) 3 f(-3) c) If 1 d) (2 + 3i) f 13 c) If a relation R on the set {1,2,3} be defined by R = {(1,2)}, then R is a) Reflexive b) transitive c) Symmetric d) None of these c) If tan ⁻¹ 2x + tan ⁻¹ 3x + π/4, then x is equal to a) 1 b) -1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81	(IV)				-	
to attempt only one of the alternatives in all such questions. (v) Use of calculators is not permitted. Section - A Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by $x f y \Leftrightarrow IxI = y$. Then, the correct option is a) $(2 + i)f 3$ b) $3f(-3)$ c) $If 1$ d) $(2 + 3i)f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by $R = \{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these b) transitive c) Symmetric d) None of these c) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) $19/8$ b) $8/19$ c) $19/12$ d) $\frac{3}{4}$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$	1.4			-		
(v) Use of calculators is not permitted. Solve question 1 to 20 each carry 1 mark each 1) A relation f from C to R is defined by x fy \Leftrightarrow IxI = y. Then, the correct option is a) (2 + i)f 3 b) 3 f(-3) c) If 1 d) (2 + 3i) f 13 c) If a relation R on the set {1,2,3} be defined by R = {(1,2)}, then R is a) Reflexive b) transitive c) Symmetric d) None of these c) The value of tan (cos ⁻¹³ /5 + tan ⁻¹ 1/4) is a) 19/8 b) 8/19 c) 19/12 d) 34 c) If tan ⁻¹ 2x + tan ⁻¹ 3x + $\pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512		-	-			
Section - ASolve question 1 to 20 each carry 1 mark each1) A relation f from C to R is defined by x f y \leftrightarrow 1x1 = y. Then, the correct option isa) $(2 + i)f 3$ b) 3 f(-3)c) I f 1a) $(2 + i)f 3$ b) 3 f(-3)c) I f 1b) f a relation R on the set {1,2,3} be defined by R = {(1,2)}, then R isa) Reflexiveb) transitivec) Symmetricb) transitivec) Symmetricd) None of thesec) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ isa) 19/8b) 8/19c) 19/12b) 1f tan ⁻¹ 2x + tan ⁻¹ 3x + $\pi/4$, then x is equal toa) 1b) -1,1/10c) 1/6c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respectivea) 6,9,8b) 6,9,6c) 9,6,6c) 9,6,6d) 6,6,9c) Total number of possible matrices of order 3*3 with each entry 2 or 0 isa) 9b) 27c) 81d) 512	(v)	1 P			1405110115.	
1) A relation f from C to R is defined by x f y \leftrightarrow IxI = y. Then, the correct option is a) $(2 + i)f 3$ b) $3 f(-3)$ c) If 1 d) $(2 + 3i) f 13$ b) If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these c) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) $19/8$ b) $8/19$ c) $19/12$ d) $^{3}4$ c) If tan $^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b) $-1,1/10$ c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ c) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512		-				
1) A relation f from C to R is defined by xf y \leftrightarrow IxI = y. Then, the correct option isa) $(2 + i)f 3$ b) 3 f(-3)c) I f 1d) $(2 + 3i) f 13$ a) $(2 + i)f 3$ b) 3 f(-3)c) I f 1d) $(2 + 3i) f 13$ b) If a relation R on the set $\{1,2,3\}$ be defined by R = $\{(1,2)\}$, then R isa) Reflexiveb) transitivec) Symmetricd) None of thesec) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ isa) 19/8b) $8/19$ c) 19/12d) $3/4$ c) If tan ⁻¹ 2x + tan ⁻¹ 3x + $\pi/4$, then x is equal toa) 1b)-1,1/10c) 1/6d) None of thesec) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respectivea) $6.9.8$ b) $6.9.6$ c) $9.6.6$ b) 6.9.6c) $9.6.6$ d) $6.6.9$ c) Total number of possible matrices of order 3*3 with each entry 2 or 0 isa) 9b) 27 c) 81d) 512				100		
a) $(2 + i)f 3$ b) $3 f(-3)$ c) $1 f 1$ d) $(2 + 3i) f 13$ c) If a relation R on the set $\{1,2,3\}$ be defined by $R = \{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these c) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) $19/8$ b) $8/19$ c) $19/12$ d) $^{3}/_{4}$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) $1/6$ d) None of these c) If A is a $3^{*}2$ matrix, B is a $3^{*}3$ matrix C is a $2^{*}3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ c) Total number of possible matrices of order $3^{*}3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	Solve question 1 to	o 20 each carry 1 mark each				
b) If a relation R on the set {1,2,3} be defined by $R = \{(1,2)\}$, then R is a) Reflexive b) transitive c) Symmetric d) None of these b) transitive c) Symmetric d) None of these c) The value of tan (cos ⁻¹³ /5 + tan ⁻¹ 1/4) is a) 19/8 b) 8/19 c) 19/12 d) ³ /4 c) If tan ⁻¹ 2x + tan ⁻¹ 3x + $\pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	1) A relation f from (C to R is defined by x fy 🔶	IxI = y.	Then, the co	prrect option is	
a) Reflexive b) transitive c) Symmetric d) None of these b) The value of tan $(\cos^{-1}3/5 + \tan^{-1}1/4)$ is a) 19/8 b) 8/19 c) 19/12 d) $\frac{3}{4}$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	a) $(2+i)f 3$	b) 3 f(-3) c) I 1	f 1		d) (2 + 3i) f 13	12
) The value of tan ($\cos^{-1}3/5 + \tan^{-1}1/4$) is a) 19/8 b) 8/19 c) 19/12 d) $\frac{3}{4}$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	2) If a relation R on th	he set {1,2,3} be defined by R	$= \{(1,2)\},\$	then R is		
a) The value of tan ($\cos^{-1}3/5 + \tan^{-1}1/4$) is a) 19/8 b) 8/19 c) 19/12 d) ³ /4 b) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these c) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512	a) Reflexive	b) transitive c) Syn	nmetric	d) Nor	ne of these	
a) $19/8$ b) $8/19$ c) $19/12$ d) $\frac{3}{4}$ c) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) $1/6$ d) None of these c) If A is a $3*2$ matrix, B is a $3*3$ matrix C is a $2*3$ matrix, then the elements in A,B and C are respective a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ c) Total number of possible matrices of order $3*3$ with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512		and the second se		,		
a) If $\tan^{-1}2x + \tan^{-1}3x + \pi/4$, then x is equal to a) 1 b)-1,1/10 c) 1/6 d) None of these b) If A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 c) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9 b) 27 c) 81 d) 512				12/		
a) 1b)-1,1/10c) 1/6d) None of thesea) 1b)-1,1/10c) 1/6d) None of theseb) 11 A is a 3*2 matrix, B is a 3*3 matrix C is a 2*3 matrix, then the elements in A,B and C are respective a) 6,9,8b) 6,9,6c) 9,6,6a) 6,9,8b) 6,9,6c) 9,6,6d) 6,6,9b) Total number of possible matrices of order 3*3 with each entry 2 or 0 is a) 9b) 27c) 81c) 81d) 512	a) 19/8	b) 8/19 c) 19/.	12	d) ¾		
 a) 6,9,8 b) 6,9,6 c) 9,6,6 d) 6,6,9 d) 6,6,9 d) 6,6,9 d) 6,6,9 d) 512 	4) If $\tan^{-1}2x + \tan^{-1}3x$	$+\pi/4$, then x is equal to				
a) $6,9,8$ b) $6,9,6$ c) $9,6,6$ d) $6,6,9$ a) Total number of possible matrices of order $3*3$ with each entry 2 or 0 isa) 9b) 27 c) 81 d) 512	a) 1	b)-1,1/10 c) 1/6		d) Nor	ne of these	
a) 9 b) 27 c) 81 d) 512	5) If A is a 3*2 matrix	x, B is a 3*3 matrix C is a 2*3	matrix, th	en the eleme	ents in A,B and C ar	e respective
a) 9 b) 27 c) 81 d) 512	a) 6,9,8	b) 6,9,6	c)	9,6,6	d) 6	6,6,9
	6) Total number of po	ossible matrices of order 3*3 v	vith each e	ntry 2 or 0 is	s	
	a) 9	b) 27 c) 81		d) 512		
) winor of an element of a determinant of order $n(n \ge 2)$ is a determinant of order.		······································		-		
	<i>i</i>) willior of an element	in of a determinant of order n($(1 \le 2)$ is a d	eterminant (order.	

a) n b) n-1 c) n-2	d) n+1					
8 A square matrix A is said to be non-singular, if						
a) $ A = 0$ b) $ A \neq 0$ c) $ A = -1$	d) $ A = 1$					
9) The function $f(x) = 4 - x^2/4x - x^3$ is						
a) Discontinuous at only one point b) Discontinuous at exactly two points						
c) Discontinuous at exactly three points d) None of the above						
10) The radius of the base of a cone is increasing at the rate of 3 cm/ min and the altitude is decreasing at the rate of 4 cm/min. The rate of change of lateral surface when the radius = 7 cm and altitude 24 cm, is						
a) $54\pi \text{ cm}^2 / \text{min}$ b) $7\pi \text{ cm}^2 / \text{min}$ c) $27\pi \text{ cm}^2 / \text{min}$	in d) None of the above					
11) If R is a relation 'is divisor of' from the set $A = \{1, 2, 3\}$ to $B = \{4, 10, 15\}$, then write down the set of ordered pairs corresponding to R.						
12) State the reason for relation R in the set $\{1, 2, 3\}$ given by $R = \{(1,2), (2,1)\}$ is not to be transitive.						
13) Evaluate $\cot^{-1}(-\sqrt{3})$						
14) Find the domain of the function $\cos^{-1}(2 \text{ x} - 1)$						
15) Let $A = [a_{ij}]_{nxn}$ be a diagonal matrix whose diagonal elements are different and $B = [b_{ij}]_{nxn}$ is some						
another matrix. If $AB = [c_{ij}]_{nxn}$, then find C_{ij} .						
16) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, then find A + A'						
17) If $3x = 8$ 7, then find the value of x.						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
18) If the determinant of matrix A of order 3 x 3 is of value 4, then write the value of $ 3A $.						
19) Find dy/dx, when $2x + 3y = \sin y$.						
20) An edge of a variable cube is increasing at the rate of 3cm/s. How fast is the volume of the cube increasing, when the edge is 10 cm long?						
Section - B						
Section - B	Constanting of Consta					

21. Construct a 3 x 4 matrix, whose elements are given by

 $a_{ij} = \frac{1}{2} [-3i + j]$

22. Find the value x, y and z from the following equation

 $\begin{bmatrix} 4 & 3 \\ x & 5 \end{bmatrix} = \begin{bmatrix} y & z \\ 1 & 5 \end{bmatrix}$

23. Show that the relation R in the set { 1, 2, 3 } given by R = { (1, 2), (2, 1) } is symmetric but neither reflexive nor Transitive

24. Evaluate the determinant:

|cosθ —sinθ |sinθ cosθ

25. If $A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 4 \end{bmatrix}$, then show that |3A| = 27 |A|

26. Find the principal value of $\sin^{-1}\frac{1}{\sqrt{2}}$

27. Find the principal value of $\cot^{-1}\sqrt{3}$

28. Check the continuity of the function f given by f(x)= 2x+3 at x=1.

Section - C

[4X6 = 24]

Solve question 29 to 36 each carry 4 marks each (any six)

29. Prove that
$$\begin{pmatrix} b+c & q+r & y+z \\ c+a & r+p & z+x \\ a+b & p+q & x+y \end{pmatrix} = 2 \begin{pmatrix} a & p & x \\ b & q & y \\ c & r & z \end{pmatrix}$$

30. Find *gof* and *fog*, if $f(x) = 8x^3$ and $g(x) = x^{\frac{1}{3}}$ 31. Prove that $\begin{pmatrix}
b + c & a & a \\
b & c + a & b \\
c & c & a + b
\end{pmatrix} = 4 a b c$

- 32. Find the inverse of the matrix
 - (i) $\begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix}$

33. If A = $\begin{bmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \\ 1 & -2 & -3 \end{bmatrix}$ then express the matrix as the sum of a symmetric and a skew symmetric matrix

34. Let R be the relation in the set { 1, 2, 3} given by $R = \{(1,2), (2,2), (1,1), (4,4), (1,3), (3,3), (3,20)\}$. Choose the Correct answer.

(i) R is reflexive and symmetric but not transitive

- (ii) R is reflexive and transitive but not symmetric
- (iii) R is symmetric and transitive but not reflexive.

(iv) R is an equivalence relation.

35. Express $\tan^{-1}\left(\frac{\cos x}{1-\sin x}\right)$, $-\frac{\pi}{2} < x < \frac{3\pi}{2}$ in the simplest form.

OR

Solve $\tan^{-1} 2x + \tan^{-1} 3x = \frac{\pi}{4}$

36. Find the equation of tangent to the curve given by $x = \sin^3 t$, $y = \cos^3 t$ at a point where $t = \frac{\pi}{2}$

OR

Differentiate $x^{x \sin x}$, x > 0 wrt x.

Section - D

[6X4 = 24]

Solve question 37 to 40 each carry 6 marks each

37. Let: $R \rightarrow R$ be defined as f(x) = 10x + 7. Find the function: $R \rightarrow R$ such that $gof = fog = I_R$

38. Show that $\sin^{-1}\frac{3}{5} - \sin^{-1}\frac{8}{17} = \cos^{-1}\frac{84}{85}$

OR

Find minors and cofactors of the elements of the determinant $\begin{pmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{pmatrix}$ and verify that

 $a_{11} \mathbf{A}_{31} + a_{12} \mathbf{A}_{32} + a_{13} \mathbf{A}_{33} = \mathbf{0}$

39. Let $A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 5 & 2 \\ 7 & 4 \end{bmatrix}$, $C = \begin{bmatrix} 2 & 5 \\ 3 & 8 \end{bmatrix}$. Find a matrix D such that CD - AB = 0OR

Find intervals in which the function given by $f(x) = \sin 3x$, $x \in \left[o, \frac{\pi}{2}\right]$ is

(i) Increasing (ii) decreasing.

40. Find $\frac{dy}{dx}$, if $y^x + x^y + x^x = a^b$

OR

Find $\frac{dy}{dx}$, $y = sinx^{sinx}$ for all $0 < x < \pi$.

ALL THE BEST