RUBRICS: SSC 1st ANNUAL EXAMINATION 2023
SUBJECT: MATHEMATICS SSC- I (Local) FINAL: 03-05-2023 (5:39PM)

Q.# /Part #	Criteria	Level 1 (Marks)	Level 2(Marks)	Level 3 (Marks)	Level 4 (Marks)	Level 5 (Marks)
$2(i)$	Simplifying by using the laws of exponents	Correctly converting each number to base 3 and correctly applying the laws of exponents (2)	Either correctly converting each number to base 3 **OR** correctly applying the laws of exponents (1)	Wrong answer (0)		
		Correctly dividing the common term and simplifying for the correct result. (2)	Either correctly dividing the common term **OR** simplifying for the correct result. (1)	Wrong answer (0)		
$2(ii)$	Finding the value of x	Correct conversion of logarithmic form to its equivalent exponential form. (2)	Partially correct response (1)	Wrong answer (0)		
		Correctly simplifying the expression and finding the correct value of x. (2)	Partially correct response (1)	Wrong answer (0)		
$2(iii)$	Simplifying by using the laws of exponents	Correctly applying the quotient law of exponents. (1)	Wrong answer (0)			
		Correctly converting the expression in one cubic root and simplifying. (2)	Either correctly converting the expression in one cubic root **OR** simplifying the expression. (1)	Wrong answer (0)		
		Finding the correct value of the expression. (1)	Wrong answer (0)			
$2(iv)$	Finding the value of $a^4+\frac{1}{a^4}$	Correctly formulating the square of $\left(a+\frac{1}{a}\right)$ and correctly finding the value of $\left(a^2+\frac{1}{a^2}\right)$ (2)	Correctly formulating the square of $\left(a+\frac{1}{a}\right)$ **OR** correctly finding the value of $\left(a^2+\frac{1}{a^2}\right)$ (1)	Wrong answer (0)		
		Correctly formulating the square of $\left(a^2+\frac{1}{a^2}\right)$ and correctly finding the value of $\left(a^4+\frac{1}{a^4}\right)$ (2)	Correctly formulating the square of $\left(a^2+\frac{1}{a^2}\right)$ **OR** correctly finding the value of $\left(a^4+\frac{1}{a^4}\right)$ (1)	Wrong answer (0)		

$2(v)$	Finding dimensions and perimeter of a rectangle	(a) Correctly factorizing and finding the correct dimensions. (2)	Correctly factorizing **OR** finding the incorrect dimensions. (1)	Wrong answer (0)		
		(b) Correctly formulating the perimeter and finding the correct perimeter. (2)	Correctly formulating the perimeter **OR** finding the correct perimeter. (1)	Wrong answer (0)		
$2(vi)$	Factorizing the expression by using Factor Theorem	Correctly finding the factors of 40. (1)	Partially correct response (0.5)	Wrong answer (0)		
		Correctly finding all the three factors. (3)	Correctly finding any two factors. (2)	Correctly finding any one factor. (1)	All incorrect factors (0)	
$2(vii)$	Finding the square root by factorization	Correctly finding $(x^2 + 3x)$ as common expression (1)	Wrong answer (0)			
		Correctly converting the given expression in perfect square (2)	Partially correct response (1)	Wrong answer (0)		
		Correctly finding the square root (1)	Wrong answer (0)			
$2(viii)$	Finding the solution set	Correctly applying LCM on R.H.S and simplifying (1)	Correctly applying LCM on R.H.S and simplifying incorrectly (0.5)	Wrong answer (0)		
		Correctly cross multiplying the equation (1)	Wrong answer (0)			
		Correctly finding the solution set (2)	Partially correct response (1)	Wrong answer (0)		
$2(ix)$	Finding values of m and c	Correctly making y as subject of the equation (2)	Partially correct response (1)	Wrong answer (0)		
		Correctly finding the values of m and c (2)	Correctly finding the values of m **OR** c (1)	Wrong answer (0)		
$2(x)$	Finding radius and diameter of the circle	(a) Correctly applying the distance formula (1)	Wrong answer (0)			

		(a) Correctly finding radius of the circle. (2)	Partially correct response (1)	Wrong answer (0)		
		(b) Correctly finding diameter of the circle. (1)	Wrong answer (0)			
$2(xi)$	Proving that angle bisectors of a triangle are concurrent **(Award zero marks without /wrong figure)**	Correct figure, given, to prove, construction (2)	Any three correctly shown aspects (1.5)	Any two correctly shown aspects (1)	Any one correctly shown aspect (0.5)	Wrong answer (0)
		Proof with correct statements and correct reasons (2)	Proof with correct statements and partially correct reasons (1.5)	Proof with correct statements without reasons (1)	Wrong answer (0)	
$2(xii)$	Show that $m\overline{PS} > m\overline{PR}$	Correct given, to prove. (2)	Any one correctly shown aspects (1)	Wrong answer (0)		
		Proof with correct statements and correct reasons (2)	Proof with correct statements and partially correct reasons (1.5)	Proof with correct statements without reasons (1)	Proof with partially correct statements without reasons (0.5)	Wrong answer (0)
2(xiii)	Finding values of $m\overline{MA}$ and $m\overline{AN}$	(a). Correctly stating $\overline{AN}$: $\overline{MA}$ (1)	Wrong answer (0)			
		(a). Correctly finding the value of $m\overline{MA}$ (2)	Partially correct response (1)	Wrong answer (0)		
		(b). Correctly finding the value of $m\overline{AN}$ (1)	Wrong answer (0)			
$2(xiv)$	Finding the value of x from the given figure.	Correctly applying the Pythagoras theorem in ΔACD and correctly finding the value of AD. (2)	Correctly applying the Pythagoras theorem in ΔACD **OR** correctly finding the value of AD. (1)	Wrong answer (0)		
		Correctly applying the Pythagoras theorem in ΔABD and correctly finding the value of x. (2)	Correctly applying the Pythagoras theorem in ΔABD **OR** correctly finding the value of x. (1)	Wrong answer (0)		

3	Finding dimensions of the rectangle by using Crammer's rule	Correctly translating two linear equations in x and y from the given data. (2)	Correctly forming any one linear equation. (1)	Wrong answer (0)		
		Correctly writing the system of equations in matrix form and correctly finding value of the determinant. (2)	Either correctly writing the system of equations in matrix form **OR** correctly finding values of the determinant. (1)	Wrong answer (0)		
		Correctly finding the values of $\lvert D_x \rvert$ and $\lvert D_y \rvert$ (2)	Any one correct aspect (1)	No correct response (0)		
		Correctly finding the values of x and y (2)	Any one correct aspect (1)	No correct response (0)		
4	Proving the H.S postulate **(Award zero marks without /wrong figure)**	Correct figure, given, to prove, construction (4)	Any three correctly shown aspects (3)	Any two correctly shown aspects (2)	Any one correctly shown aspect (1)	Wrong answer (0)
		Proof with correct statements and correct reasons (4)	Proof with correct statements and partially correct reasons (3)	Proof with correct statements without reasons (2)	Proof with partially correct statements and partially correct reasons. (1)	Wrong answer (0)
5	Proving converse of Pythagoras' Theorem **(Award zero marks without /wrong figure)**	Correct figure, given, to prove, construction (4)	Any three correctly shown aspects (3)	Any two correctly shown aspects (2)	Any one correctly shown aspect (1)	Wrong answer (0)
		Proof with correct statements and correct reasons (4)	Proof with correct statements and partially correct reasons (3)	Proof with correct statements without reasons (2)	Proof with partially correct statements and partially correct reasons. (1)	Wrong answer (0)

6	Proving that if line segment joining the mid points of two sides of a triangle is parallel to third side, and is equal to one half of its length. **(Award zero marks without /wrong figure)**	Correct figure, given, to prove, construction (4)	Any three correctly shown aspects (3)	Any two correctly shown aspects (2)	Any one correctly shown aspect (1)	Wrong answer (0)
		Proof with correct statements and correct reasons (4)	Proof with correct statements and partially correct reasons (3)	Proof with correct statements without reasons (2)	Proof with partially correct statements and partially correct reasons. (1)	Wrong answer (0)
7	Constructing triangle XYZ with one altitude and finding its area.	Correctly constructing triangle XYZ by drawing $m\overline{XY}$, $m\overline{YZ}$ $m\overline{ZX}$ (3)	Correctly constructing any two sides of triangle. (2)	Correctly constructing any one side of triangle. (1)	No correct construction (0)	
		Correctly writing construction steps. (1)	Partially correct steps of construction. (0.5)	Wrong answer (0)		
		(a) Correct construction of the altitude. (2)	Partially correct construction of the altitude (1)	Wrong answer (0)		
		(b) Correctly formulating and correctly finding area of triangle XYZ. (2)	Either correctly formulating **OR** correctly finding area of triangle XYZ. (1)	Wrong answer (0)		

Note: All Examiners must know the solution of the Question Paper before starting marking.