RUBRICs: SSC 1st ANNUAL EXAMINATION 2023
SUBJECT: MATHEMATICS SSC- I (HA) 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 values of x and y	Correctly converting L.H.S and R.H.S in complex number form. (2)	Correctly converting L.H.S **OR** R.H.S in complex number form. (1)	Partially converting L.H.S **OR** R.H.S in complex number form. (0.5)	Wrong answer (0)	
		Correctly forming two linear equations (1)	Correctly finding any one of the linear equations. (0.5)	Wrong answer (0)		
		Correctly finding the values of x and y. (1)	Correctly finding the value of x **OR** y. (0.5)	Wrong answer (0)		
$2(iii)$	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)		
$2(iv)$	Finding the values of $4xy$, $2(x^2+y^2)$, $8xy(x^2+y^2)$	Correctly formulating and correctly finding the value of $4xy$ (1.5)	Correctly formulating and finding the incorrect value of $4xy$ (0.5)	Wrong answer (0)		
		Correctly formulating and correctly finding the value of $2(x^2+y^2)$ (1.5)	Correctly formulating and finding the incorrect value of $2(x^2+y^2)$ (0.5)	Wrong answer (0)		
		Correctly finding the value of $8xy(x^2+y^2)$ (1)	Partially correct response (0.5)	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 correct 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 $-\frac{1}{2}$. (1)	Partially correct response (0.5)	Wrong answer (0)		
		Correctly finding all 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 forming the expression quadratic in $\left(x-\frac{1}{x}\right)$. (2)	Partially correct response (1)	Wrong answer (0)		
		Correctly converting the given expression in square form. (1)	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.	Wrong answer (0)		

$2(x)$	Verifying whether the given triangle is equilateral or not.	Correctly applying the distance formula for $\|OA\|, \|OB\|$ and $\|AB\|$ (1.5)	Any two correct aspects. (1)	Any one correct aspect (0.5)	Wrong answer (0)	
		(a) Correctly finding the values of $\|OA\|, \|OB\|$ and $\|AB\|$ (1.5)	Any two correct aspects. (1)	Any one correct aspect (0.5)	Wrong answer (0)	
		Correctly verifying the triangle as non-equilateral. (1)	Wrong response (0)			
$2(xi)$	Proving that right 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 $m\overline{PN} > m\overline{PM}$	Correct given, to prove. (2)	Correctly shown aspect given **OR** to prove (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 $m\overline{AD}$ and $m\overline{BD}$.	Correctly finding $\overline{AD}:\overline{BD}$ (1)	Wrong answer (0)			
		Correctly finding the value of $m\overline{AD}$. (2)	Partially correct response (1)	Wrong answer (0)		
		Correctly finding the value of $m\overline{BD}$. (1)	Wrong answer (0)			
$2(xiv)$	Finding the direct distance $m\overline{AD}$ from house to school.	Correctly forming rectangle of dimensions 3 by 8 and right triangle with base 8 and altitude 7. (2)	Correctly forming rectangle of dimensions 3 by 8 **OR** right triangle with base 8 and altitude 7. (1)	Wrong answer (0)		
		Correctly applying the Pythagoras theorem and correctly finding the value of $m\overline{AD}$. (2)	Correctly applying the Pythagoras theorem **OR** correctly finding the value of $m\overline{AD}$. (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 S.S.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 the 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 medians of a triangle are concurrent and their point of concurrency is the point of trisection of each median. **(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 PQR with one altitude and finding its area.	Correctly constructing triangle PQR by drawing $m\overline{PQ}$, $m\overline{QR}$ $m\overline{PR}$ (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 PQR. (2)	Either correctly formulating **OR** correctly finding area of triangle PQR. (1)	Wrong answer (0)		

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