

**RUBRICS: SSC 1<sup>st</sup> ANNUAL EXAMINATION 2024**  
**SUBJECT: GENERAL MATHEMATICS-I**

Q#/Part#	Criteria	Level 1 (Marks)	Level 2 (Marks)	Level 3 (Marks)	Level 4 (Marks)	Level 5 (Marks)
2(i)	Finding percentage difference between Rauf and Raheel's income	Correctly stating Rauf and Raheel's income <b>AND</b> Correctly stating the income-difference (2)	Correctly stating Rauf and Raheel's income <b>AND</b> Stating the income-difference wrong (1)	Correctly stating Rauf's income and Stating Raheel's income wrong (0.5)	Wrong Statements (0)	
		Correctly applying the income-difference percentage formula <b>AND</b> Correctly calculating the income-difference percentage (2)	Correctly applying the income-difference percentage formula <b>AND</b> Calculating the income-difference percentage partially correct (1.5)	Correctly applying the income-difference percentage formula <b>AND</b> Calculating the income-difference percentage wrong (1)	Wrong Formula (0)	
2(i)	Evaluating the expression by using laws of logarithms	Correctly applying the power law <b>AND</b> Correctly simplifying the exponents (1)	Correctly applying the power law <b>AND</b> Incorrect simplification of exponents (0.5)	Wrong answer (0)		
		Correctly applying the product law <b>AND</b> Correctly applying the quotient law (1)	Correctly applying the product law <b>OR</b> Correctly applying the quotient law (0.5)	Incorrect Response (0)		

		Correctly simplifying the fraction (1)	Partially correct response (0.5)	Incorrect Response (0)		
		Correctly finding value of the given expression (1)	Partially correct response (0.5)	Incorrect Response (0)		
2(ii)	Finding seven men's cost of stay for thirteen days	Correctly stating proportion to relate men, days and cost (1)	Stating proportion partially correct (0.5)	Wrong proportion (0)		
		Correctly equating the product of means and the product of extremes (1)	Finding correct product of means <b>OR</b> Finding correct product of extremes (0.5)	Wrong findings (0)		
		Correctly simplifying both sides of the equation (1)	Correct simplification of one side (0.5)	Wrong Simplification (0)		
		Correctly finding the cost of stay for 13 days (1)	Partially Correct Response (0.5)	Wrong findings (0)		
2(ii)	Inserting three AMs between 8 and 24	Correctly formulating the 4 <sup>th</sup> term of AP <b>AND</b> Correctly finding the common difference (1)	Correctly formulating the 4 <sup>th</sup> term of AP <b>AND</b> Finding incorrect common difference (0.5)	Incorrect Response (0)		
		Correctly formulating the 1 <sup>st</sup> AM <b>AND</b> Correctly finding the 1 <sup>st</sup> AM (1)	Correctly formulating the 1 <sup>st</sup> AM <b>AND</b> Finding the incorrect 1 <sup>st</sup> AM (0.5)	Incorrect formulation (0)		
		Correctly formulating the 2 <sup>nd</sup> AM <b>AND</b> Correctly finding the 2 <sup>nd</sup> AM (1)	Correctly formulating the 2 <sup>nd</sup> AM <b>AND</b> Finding the incorrect 2 <sup>nd</sup> AM (0.5)	Incorrect formulation (0)		

		Correctly formulating the 3 <sup>rd</sup> AM <b>AND</b> Correctly finding the 3 <sup>rd</sup> AM (1)	Correctly formulating the 3 <sup>rd</sup> AM <b>AND</b> Finding the incorrect 3 <sup>rd</sup> AM (0.5)	Incorrect Formulation (0)		
2(iii)	Calculating the amount of ushr when the wheat crop is produced by natural resources	Correctly calculating the price of 1 kg wheat (1)	Wrong Calculations (0)			
		Correctly calculating the price of 40,000 kg wheat (1)	Wrong Calculations (0)			
		Correctly stating ushr %age for natural resources (1)	Wrong statement (0)			
		Correctly calculating the amount of ushr for 40,000 kg wheat (1)	Wrong Calculations (0)			
2(iii)	Verifying the De-Morgan's Law $(A \cup B)' = A' \cap B'$	Correctly finding elements of the set $(A \cup B)$ (1)	Partially correct response (0.5)	Wrong findings (0)		
		Correctly finding elements of the set $(A \cup B)'$ (1)	Partially correct response (0.5)	Wrong findings (0)		
		Correctly finding elements of the set $A'$ <b>AND</b> Correctly finding elements of the set $B'$ (1)	Correctly finding elements of the set $A'$ <b>OR</b> Correctly finding elements of the set $B'$ (0.5)	Wrong findings (0)		
		Correctly finding $A' \cap B'$ (1)	Partially correct response (0.5)	Wrong findings (0)		
2(iv)	Calculating cash payment for buying a TV	Correctly calculating 5% discount on list price (1)	Partially correct response (0.5)	Wrong Calculations (0)		
		Correctly calculating 1 <sup>st</sup> buying price (1)	Wrong Calculations (0)			

		Correctly calculating 2% discount on the 1 <sup>st</sup> buying price (1)	Partially correct response (0.5)	Wrong Calculations (0)		
		Correctly calculating 2 <sup>nd</sup> buying price (1)	Wrong Calculations (0)			
2(iv)	Finding whether given relations are functions or not and mentioning type of the function	Correctly stating $Dom(R_1) = U$ <b>AND</b> Correctly stating the non-repeated elements of $Dom(R_1)$ (1)	Correctly stating $Dom(R_1) = U$ <b>OR</b> Correctly stating the non-repeated elements of $Dom(R_1)$ (0.5)	Wrong statements (0)		
		Correctly stating $Range(R_1) = V$ <b>AND</b> Correctly stating $R_1$ as $(1 - 1)$ function (1)	Correctly stating $Range(R_1) = V$ <b>OR</b> Correctly stating $R_1$ as $(1 - 1)$ function (0.5)	Wrong statements (0)		
		Correctly stating $Dom(R_2) = U$ <b>AND</b> Correctly stating the repeated elements of $Dom(R_2)$ (1)	Correctly stating $Dom(R_2) = U$ <b>OR</b> Correctly stating the non-repeated elements of $Dom(R_2)$ (0.5)	Wrong statements (0)		
		Correctly stating that $R_2$ is not a function (1)	Wrong statement (0)			
2(v)	Finding the profit percentage of dealer	Correctly finding the Marked Price (1)	Wrong findings (0)			
		Correctly finding the Discount Price (1)	Wrong findings (0)			
		Correctly finding the Sale Price (1)	Wrong findings (0)			

		Correctly finding the Profit %age (1)	Wrong findings (0)			
2(v)	Making table of four pairs of values for $y = 4x+1$	Correctly tabulating the 1 <sup>st</sup> ordered pair (1)	Partially Correct Response (0.5)	Incorrect ordered pair (0)		
		Correctly tabulating the 2 <sup>nd</sup> ordered pair (1)	Partially Correct Response (0.5)	Incorrect ordered pair (0)		
		Correctly tabulating the 3 <sup>rd</sup> ordered pair (1)	Partially Correct Response (0.5)	Incorrect ordered pair (0)		
		Correctly tabulating the 4 <sup>th</sup> ordered pair (1)	Partially Correct Response (0.5)	Incorrect ordered pair (0)		
2(vi)	Finding amount of zakat on 10 tola gold and 40 tola silver	Correctly finding the worth of 10 tola gold <b>AND</b> Correctly finding the amount of zakat (2)	Correctly finding the worth of 10 tola gold <b>AND</b> Finding partially correct amount of zakat (1.5)	Correctly finding the worth of 10 tola gold <b>AND</b> Finding the incorrect amount of zakat (1)	Partially correct response (0.5)	Wrong findings (0)
		Correctly finding the worth of 40 tola silver <b>AND</b> Correctly finding the amount of zakat (2)	Correctly finding the worth of 40 tola silver <b>AND</b> Finding partially correct amount of zakat (1.5)	Correctly finding the worth of 40 tola silver <b>AND</b> Finding the incorrect amount of zakat (1)	Partially correct response (0.5)	Wrong findings (0)
2(vi)	Distributing profit among three persons	Correctly finding sum of sharing ratios (1)	Wrong findings (0)			
		Correctly formulating the share <b>AND</b> Correctly finding 1 <sup>st</sup> person's share (1)	Correctly formulating the share <b>AND</b> Finding incorrect share of 1 <sup>st</sup> person (0.5)	Wrong findings (0)		

		Correctly formulating the share <b>AND</b> Correctly finding 2 <sup>nd</sup> person's share (1)	Correctly formulating the share <b>AND</b> Finding incorrect share of 2 <sup>nd</sup> person (0.5)	Wrong findings (0)		
		Correctly formulating the share <b>AND</b> Correctly finding 3 <sup>rd</sup> person's share (1)	Correctly formulating the share <b>AND</b> Finding incorrect share of 3 <sup>rd</sup> person (0.5)	Wrong findings (0)		
2(vii)	Finding the compound profit	Correctly formulating the Accumulated Amount (1)	Wrong Formula (0)			
		Correctly calculating the Accumulated Amount (1)	Partially Correct Answer (0.5)	Wrong answer (0)		
		Correctly formulating the profit (1)	Wrong Formula (0)			
		Correctly calculating the profit (1)	Partially Correct Answer (0.5)	Wrong answer (0)		
2(vii)	Calculating net take home salary after given deductions	Correctly finding sum of given deductions (2)	Partially Correct Response (1)	Wrong Findings (0)		
		Correctly finding take home salary after deductions (2)	Partially Correct Response (1)	Wrong Findings (0)		
2(viii)	Calculating the tax chargeable amount	Correctly formulating the amount exempted (1)	Wrong formulation (0)			
		Correctly calculating the amount exempted (1)	Partially correct calculations (0.5)	Wrong answer (0)		
		Correctly formulating the tax chargeable	Wrong formulation (0)			

		(1)				
		Correctly calculating the taxable chargeable (1)	Partially correct calculations (0.5)	Wrong answer (0)		
2(viii)	Finding the inherited share of three daughters	Correctly finding sum of sharing ratios (1)	Wrong answer (0)			
		Correctly formulating the share <b>AND</b> Correctly finding 1 <sup>st</sup> daughter's share (1)	Correctly formulating the share <b>AND</b> Finding incorrect share of 1 <sup>st</sup> daughter (0.5)	Wrong answer (0)		
		Correctly formulating the share <b>AND</b> Correctly finding 2 <sup>nd</sup> daughter's share (1)	Correctly formulating the share <b>AND</b> Finding incorrect share of 2 <sup>nd</sup> daughter (0.5)	Wrong answer (0)		
		Correctly formulating the share <b>AND</b> Correctly finding 3 <sup>rd</sup> daughter's share (1)	Correctly formulating the share <b>AND</b> Finding incorrect share of 3 <sup>rd</sup> daughter (0.5)	Wrong answer (0)		
2(ix)	Simplifying the given expression	Correctly applying the power law to numerator <b>AND</b> Correctly simplifying the powers (1)	Correctly applying the power law to numerator <b>AND</b> Simplifying the powers incorrectly (0.5)	Wrong answer (0)		
		Correctly applying the power law to denominator <b>AND</b> Correctly simplifying the powers (1)	Correctly applying the power law to denominator <b>AND</b> Simplifying the powers incorrectly	Wrong answer (0)		

			(0.5)			
		Correctly applying the quotient law of exponents to expression $a$ <b>AND</b> Correctly simplifying the power of expression $a$ (1)	Correctly applying the quotient law of exponents to expression $a$ <b>AND</b> Simplifying the power of expression $a$ incorrectly (0.5)	Wrong answer (0)		
		Correctly applying the quotient law of exponents to expression $b$ <b>AND</b> Correctly simplifying the power of expression $b$ (1)	Correctly applying the quotient law of exponents to expression $b$ <b>AND</b> Simplifying the power of expression $b$ incorrectly (0.5)	Wrong answer (0)		
2(ix)	Drawing Histogram from the given distribution	Correctly drawing the coordinate axes (1)	Partially correct response (0.5)	Incorrect Response (0)		
		Correctly choosing an appropriate scale (1)	Partially correct response (0.5)	Incorrect Response (0)		
		Correctly constructing the 1 <sup>st</sup> rectangular bar <b>AND</b> Correctly constructing the 2 <sup>nd</sup> rectangular bar (1)	Correctly constructing the 1 <sup>st</sup> rectangular bar <b>OR</b> Correctly constructing the 2 <sup>nd</sup> rectangular bar (0.5)	Wrong Construction (0)		
		Correctly constructing the 3 <sup>rd</sup> rectangular bar <b>AND</b> Correctly constructing the 4 <sup>th</sup> rectangular bar (1)	Correctly constructing the 3 <sup>rd</sup> rectangular bar <b>OR</b> Correctly constructing the 4 <sup>th</sup> rectangular bar (0.5)			
3	Finding the price of the two cars inclusive	Correctly finding the Excise Duty of 1300cc car	Partially Correct Response (1)	Wrong findings (0)		



	duties	(2) Correctly finding the Price of 1300cc car with Excise Duty (2)	Partially Correct Response (1)	Wrong findings (0)		
		Correctly finding the Excise Duty of 1600cc car (2)	Partially Correct Response (1)	Wrong findings (0)		
		Correctly finding the price of 1600cc car with Excise Duty (2)	Partially Correct Response (1)	Wrong findings (0)		
3	Verifying the Associative Law of intersection $(A \cup B) \cup C = A \cup (B \cup C)$	Correctly finding elements of the set $A \cup B$ <b>AND</b> Correctly finding elements of the set $(A \cup B) \cup C$ (4)	Correctly finding elements of $A \cup B$ <b>AND</b> Finding partially correct elements of $(A \cup B) \cup C$ (3)	Finding partially correct elements of $A \cup B$ <b>AND</b> Finding partially correct elements of the set $(A \cup B) \cup C$ (2)	Finding partially correct elements of $A \cup B$ (1)	Wrong Answer (0)
		Correctly finding elements of the set $B \cup C$ <b>AND</b> Correctly finding elements of the set $A \cup (B \cup C)$ (4)	Correctly finding elements of $B \cup C$ <b>AND</b> Finding partially correct elements of $A \cup (B \cup C)$ (3)	Finding partially correct elements of $B \cup C$ <b>AND</b> Finding partially correct elements of $A \cup (B \cup C)$ (2)	Finding partially correct elements of $B \cup C$ (1)	Wrong Answer (0)
4	Finding sum of money produced in 3 years at 5% compound profit	Correctly formulating the Accumulated Amount <b>AND</b> Correctly calculating the Accumulated Amount (2)	Correctly formulating the Accumulated Amount <b>AND</b> Calculating the Accumulated Amount partially Correct (1.5)	Correctly formulating the Accumulated Amount <b>AND</b> Calculating Incorrect Accumulated Amount (1)	Wrong Formulation (0)	
		Correctly formulated the Compound Profit <b>AND</b> Correctly calculated the Compound Profit (2)	Correctly formulating the Compound Profit <b>AND</b> Calculating the Compound Profit partially Correct (1.5)	Correctly formulating the Compound Profit <b>AND</b> Calculating Incorrect Compound Profit (1)	Wrong Formulation (0)	

		Correctly calculating the Principal Amount on unit Compound Profit (2)	Calculating the Principal Amount on unit Compound Profit partially correct (1)	Wrong answer (0)		
		Correctly calculating the Principal Amount on Compound Profit (2)	Calculating the Principal Amount on Compound Profit partially correct (1)	Wrong answer (0)		
4	Finding Mean, Median, Mode and Range values from the given data	(a) Correctly formulating Mean value <b>AND</b> Correctly finding the Mean value (2)	Correctly formulating Mean value <b>AND</b> Finding the incorrect Mean value (1)	Partially correct response (0.5)	Wrong answer (0)	
		(b) Correctly formulating Median value <b>AND</b> Correctly finding the Median value (2)	Correctly formulating Median value <b>AND</b> Finding the incorrect Median value (1)	Partially correct response (0.5)	Wrong answer (0)	
		(c) Correctly formulating Mode value <b>AND</b> Correctly finding the Mode value (2)	Correctly formulating Mode value <b>AND</b> Finding the incorrect Mode value (1)	Partially correct response (0.5)	Wrong answer (0)	
		(d) Correctly formulating the Range value <b>AND</b> Correctly finding the Range value (2)	Correctly formulating Range value <b>AND</b> Finding the incorrect Range value (1)	Partially correct response (0.5)	Wrong answer (0)	
5	Evaluating	Correctly applying the Quotient Law of logarithms (1)	Incorrect application of the law (0)			
		Correctly applying the Product Law of logarithms to the numerator	Incorrect application of the law			

	$\frac{(0.0437)^{\frac{2}{3}} \times (1.407)^2}{(0.0015)^{\frac{1}{3}} \times (1.235)^{\frac{1}{7}}}$ <p>by using logarithms</p>	(1) Correctly applying the Product Law of logarithms to the denominator (1)	(0) Incorrect application of the law (0)			
		(1) Correctly applying the Power Law of logarithms (1)	(0) Incorrect application of the law (0)			
		(1) Correctly finding log value of (0.0437) <b>AND</b> Correctly finding log value (1.407) (1)	(0.5) Correctly finding log value of (0.0437) <b>OR</b> Correctly finding log value (1.407) (0.5)	(0) Wrong Value (0)		
		(1) Correctly finding log value of (0.0015) <b>AND</b> Correctly finding log value (1.235) (1)	(0.5) Correctly finding log value of (0.0015) <b>OR</b> Correctly finding log value (1.235) (0.5)	(0) Wrong Value (0)		
		(1) Correctly finding logarithm of the given expression (1)	(0) Wrong Value (0)			
		(1) Correctly finding value of the given expression (1)	(0) Wrong Value (0)			
5		Finding the $n^{\text{th}}$ term of an GP	(2) Correctly formulating 5 <sup>th</sup> term of GP <b>AND</b> Correctly formulating 3 <sup>rd</sup> term of GP (2)	(1) Correctly formulating 5 <sup>th</sup> term of GP <b>OR</b> Correctly formulating 3 <sup>rd</sup> term of GP (1)	(0.5) Partially correct response (0.5)	(0) Wrong formulation (0)
	(2) Correctly finding common ratio $r$ of GP (2)	(1) Partially correct response (1)	(0) Wrong Answer (0)			
	(2) Correctly finding first term $a$ of GP (2)	(1) Partially correct response (1)	(0) Wrong Answer (0)			

		Correctly formulating $n^{\text{th}}$ term of GP <b>AND</b> Correctly finding $n^{\text{th}}$ term of GP (2)	Correctly formulating $n^{\text{th}}$ term of GP <b>OR</b> Correctly finding $n^{\text{th}}$ term of GP (1)	Partially correct response (0.5)	Wrong Answer (0)	
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**Note: All Examiners must know the solution of the Question Paper before starting marking.**