



INDIAN SCHOOL AL WADI AL KABIR  
Pre Mid-Term Examination (2024-25)  
Sample Paper

Class: X

Sub: MATHEMATICS (041)

Max Marks: 30  
Time: 1 hour

**General Instructions:**

1. This question paper is divided into 4 sections- A, B, C and D.
2. Section A comprises of 7 questions of 1 mark each.
3. Section B comprises of 3 questions of 2 marks each.
4. Section C comprises of 3 questions of 3 marks each.
5. Section D comprises of 2 Case based integrated units of assessment (4 marks each) with sub-parts of the values 2, 1 and 1 marks each respectively.
6. All questions are compulsory. However, an internal choice in 1 Q of 2 marks, 1 Q of 3 marks has been provided. An internal choice has been provided in the 2 marks questions of section D.

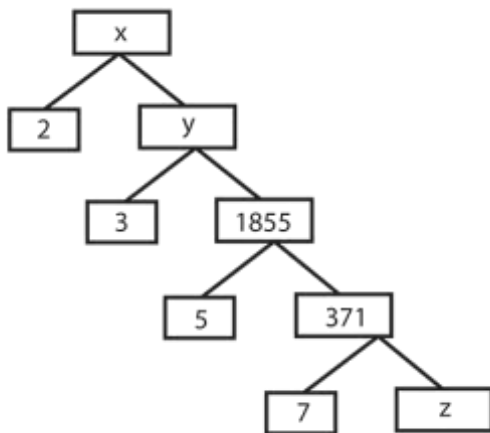
**Section A**

**PART-1(MCQ-1 mark each)**

**Q.1.** The HCF and LCM of two numbers are 33 and 264 respectively. If the first number is completely divided by 2 the quotient is 33, then the other number is

<b>A</b>	33	<b>B</b>	264	<b>C</b>	164	<b>D</b>	132
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**Q.2.** In the given factor tree what is the composite number x ?




<b>A</b>	5,565	<b>B</b>	11,130	<b>C</b>	35	<b>D</b>	2,597
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**Q.3.** If  $a = 2^3 \times 5 \times 7$ ,  $b = 5^2 \times 7$ ,  $c = 5^n \times 7$  and the HCF (a, b, c) =  $5 \times 7$ , then the value of n is

<b>A</b>	1	<b>B</b>	2	<b>C</b>	any natural number	<b>D</b>	3
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Q.4.	The pair of linear equations Intersecting at $x + 2y - 5 = 0$ and Intersecting at $2x - 4y + 6 = 0$							
	A	is inconsistent	B	is consistent with many solutions	C	is consistent with a unique solution	D	is consistent with two solution
Q.5.	If $\alpha, \beta$ are zeroes of $x^2 - 6x + k$ , what is the value of k if $5\alpha + 4\beta = 20$ ?							
	A	6	B	-40	C	-4	D	10
Q.6.	In Figure, ABCD is a rectangle. Find the values of $2x + y$							
	A	10	B	7	C	13	D	21
<b>Section A</b>								
<b>PART-2 ASSERTION AND REASON TYPE QUESTIONS (1 mark each)</b>								
<b>DIRECTION:</b> A statement of <b>Assertion (A)</b> is followed by a statement of <b>Reason (R)</b> .								
Choose the correct option.								
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).								
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).								
(c) Assertion (A) is true but Reason (R) is false.								
(d) Assertion (A) is false but Reason (R) is true.								
Q.7.	Assertion (A): $3 \times 5 \times 7 + 7$ is a composite number. Reason (R): A composite number has factors one, itself and any other natural number.							
<b>Section B (2 marks each)</b>								
Q.8.	Find the largest number which divides 614 and 1319, leaving remainder 2 and 5 respectively.  (OR) Two neon lights are turned on at the same time. One blinks every 4 seconds and the other blinks every 6 seconds. In 60 seconds, how many times will they blink at the same time?							
Q.9.	Check whether $15^n$ can end with the digit 0 for any natural number n.							
Q.10.	If $2x - 3y = 7$ and $(a + b)x - (a + b - 3)y = 4a + b$ represent coincident lines, then find a and b.							

<b>Section C (3 marks each)</b>	
<b>Q.11.</b>	Sumit is 3 times as old as his son. Five years later he shall be two and a half times as old as his son. How old is Sumit at present?  <p style="text-align: center;"><b>(OR)</b></p> The ratio of incomes of two persons is 9 : 7 and the ratio of their expenditures is 4 : 3. If each of them manages to save ₹ 2000 per month, find their monthly incomes.
<b>Q.12.</b>	On a morning walk, three persons step off together and their step measure 40 cm, 42 cm and 45 cm respectively. What is the minimum distance each should walk, so that each can cover the same distance in complete steps?
<b>Q.13.</b>	If $\alpha, \beta$ are the zeroes of $2x^2 - 5x + 3$ , then find the values of (i) $\alpha^2 + \beta^2$ (ii) $\frac{1}{2\alpha} + \frac{1}{2\beta}$ (iii) $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$ .
<b>Section D</b> <b>(CASE STUDY BASED QUESTIONS – 4 MARKS EACH)</b>	
<b>Q.14.</b>	<p><b><u>CASE STUDY BASED-I</u></b></p> <p>Quadratic polynomial can be used to model the shape of many architectural structures in the world. Pershing field of Jersey City in US is one such structure. Based on the above information, answer the following questions.</p> <div style="text-align: center;">  </div> <p>(i) If the arch is represented by <math>10x^2 - x - 3</math> then find its zeroes. <span style="float: right;">(1 m)</span></p> <p>(ii) a) Find the quotient of the sum of the zeroes by the product of the zeroes of the quadratic polynomial <math>\sqrt{3}x^2 - 14x + 8\sqrt{3}</math> <span style="float: right;">(2 m)</span></p> <p style="text-align: center;"><b>OR</b></p> <p>b) If <math>\alpha</math> and <math>\beta</math> are the zeroes of the polynomial <math>f(x) = x^2 + 2x - 8</math>, then find the value of <math>\alpha^3 + \beta^3</math>. <span style="float: right;">(2 m)</span></p> <p>(iii) Find the quadratic polynomial whose sum of zeroes is 0 and product of zeroes is <math>-1</math>. <span style="float: right;">(1 m)</span></p>

Q.15.

**CASE STUDY BASED-II**

A bookstore shopkeeper gives books on rent for reading. He has a variety of books in his store related to fiction, stories, quizzes, etc. He takes a fixed charge for the first two days and an additional charge for the subsequent day. Amruta paid ₹ 22 for a book kept for 6 days; While Radhika paid ₹16 for keeping the books for 4 days.



Assume that the fixed charge be ₹ x and additional charge (per day) be ₹ y. Based on the above information, answer the following questions:

- (i) Frame the linear equation for Radhika. (1 m)
- (ii) Frame the linear equation for Amruta. (1 m)
- (iii)(a) What is the additional charge for each subsequent day for a book? (2 m)

(OR)

- (b) What is the total amount paid by both, if both of them have kept the books for 4 more days? (2 m)

**ANSWERS**

<b>Q.1</b>	D	<b>Q.2</b>	B	<b>Q.3</b>	C	<b>Q.4</b>	C
<b>Q.5</b>	B	<b>Q.6</b>	A	<b>Q.7</b>	c	<b>Q.8</b>	18 (OR) 5 times
<b>Q.10</b>	a = -5, b = -1	<b>Q.11</b>	45 yrs. (OR) ₹18000, ₹14000	<b>Q.12</b>	2520	<b>Q.13</b>	$\frac{13}{4}, \frac{5}{6}, \frac{13}{6}$
<b>Q.14</b>	(i) $-\frac{1}{2}, \frac{3}{5}$ (ii) a) $7/4\sqrt{3}$ (OR) b) -56 (iii) $x^2-1$	<b>Q.15</b>	(i) $x + 4y = 22$ (ii) $x + 2y = 16$ (iii) a) ₹ 3 (OR) b) ₹ 62				