



विद्या सर्वार्थ साधिका

# ANANDALAYA PERIODIC TEST – 1

Class: X

Subject: Mathematics

Date :14-07-2022

M.M: 40

Time: 2 hours

### General Instructions:

1. The question paper consists of 17 questions divided into 4 sections A, B, C and D.
2. All questions are compulsory.
3. Section A comprises of 5 questions of 1 mark each. Internal choice has been provided in one question.
4. Section B comprises of 4 questions of 2 marks each. Internal choice has been provided in one question.
5. Section C comprises of 5 questions of 3 marks each. An internal choice has been provided in one question.
6. Section D comprises of 3 questions of 4 marks each. An internal choice has been provided in one question.

### SECTION – A

1. Which of these is a factor of the polynomial  $p(x) = x^3 + 4x + 5$ ? (1)  
(a)  $(x + 1)$                       (b)  $(x - 1)$                       (c)  $(x + 3)$                       (d)  $(x - 3)$
2. If  $y$  is a natural number, then write the zero(s) of the polynomial  $y^2 - 16 = 0$ . (1)
3. If the lines given by  $3x + 2ky = 8$  and  $2x + 5y - 4 = 0$  are parallel, then find the value of  $k$ . (1)
4. If  $6370 = 2^m \times 5^n \times 7^k \times 13^p$  then find the value of  $m + n + k + p$ . (1)

OR

Calculate the HCF of 96 and 404.

5. Write the point of intersection of the lines  $x + 3 = 0$  and  $y - 4 = 0$ . (1)

### SECTION – B

6. Match the Column: (2)

	Column I		Column II
P.	13/125	1.	Irrational
Q.	$\sqrt{3}$	2.	Terminating decimal expansion
R.	200/25	3.	Non-terminating repeating decimal expansion
S.	61/455	4.	Rational number

Write the correct option from the following:

	P	Q	R	S
(A)	2	1	3	4
(B)	1	2	3	4
(C)	2	1	4	3
(D)	1	2	4	3

7. Consider the equations shown:  $ax + by = ab$  &  $2ax + 3by = 3b$ . Express the value of  $y$  in terms of 'a'. (2)

OR

Two numbers are in the ratio 1 : 3. If 5 is added to both the numbers, the ratio becomes 1 : 2. Find the numbers.

8. If sum and product of zeros of quadratic polynomial are, respectively 8 and 12, then find the polynomial. Also find the zeros of it. (2)
9. The decimal representation of  $15/400$  will terminate after how many decimal numbers? (2)

SECTION – C

10. If one zero of the polynomial  $3x^2 - 8x + 2k + 1$  is seven times the other, then find the value of k. (3)

OR

Write the polynomial whose zeroes are  $(\sqrt{2} + 1)$  and  $(\sqrt{2} - 1)$ .

11. Shipra gave a note of ₹ 2,000 for a pair of jeans worth ₹ 500. She was returned 11 notes in denominations of ₹ 200 and ₹ 100. Write the pair of equations can be used to find the number of ₹200 notes as x, and the number of ₹ 100 notes as y. How many notes of ₹ 200 did she get? (3)
12. There are 24 peaches, 36 apricots and 60 bananas and they have to arranged in several rows in such a way that every row contains the same member of fruits of only one type. What is the minimum number of rows required for this to happen? (3)
13. In the equations shown below, a and b are unknown constants. (3)
- $$3ax + 4y = -2 ; \quad 2x + by = 14$$
- If  $(-3, 4)$  is the solution of the given equations, what are the values of a and b?
14. If zeros  $\alpha$  and  $\beta$  of a polynomial  $x^2 - 7x + k$  are such that  $\alpha - \beta = 1$ , then find the value of k. (3)

SECTION – D

15. Three bulbs red, green and yellow flash at intervals of 80 seconds, 90 seconds and 110 seconds. All three flash together at 8:00 am. At what time will the three bulbs flash altogether again? (4)
16. Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m. The dimensions of the garden are (use graphical method) (4)

OR

From Rajiv Chowk Metro Station, if Jigisha buys 4 tickets to Karol Bagh and 6 tickets to Hauz Khas, then total cost is ₹ 92, but if she buys 6 tickets to Karol Bagh and 10 tickets to Hauz Khas, then total cost is ₹ 148. If she considers the fares from Rajiv Chowk to Karol Bagh and that to Hauz Khas as ₹x and ₹y respectively, then find the value of x and y.

17. If  $\alpha$  and  $\beta$  are the zeros of the quadratic polynomial  $f(x) = x^2 + x - 2$ , then find the polynomial whose zeros are  $2\alpha + 1$  and  $2\beta + 1$ . (4)