પુના International School
Shree Swaminarayan Gurukul, Zundal

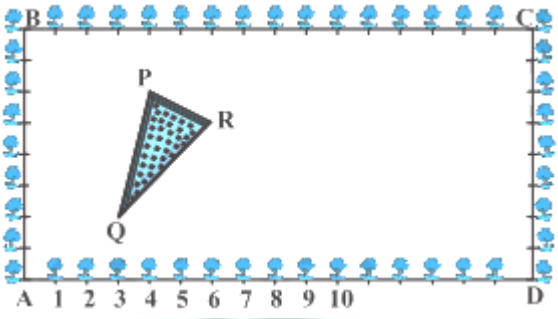
Examination P A 2020 – 21					
Student Name				**Grade** 10^{th}	
Date				**Subject**	**MATHEMATICS**
		Time		**Total Marks**	**50**

Choose correct option [1 X 8 = 8]

1. H.C.F of 12 and 50 is
   (A) 2 (B) 4 (C) 12 (D) None
2. What is the LCM of 4 and 19 is
   (A) 1 (B) 4 (C) 19 (D) 76
3. The zero of p(x) = ax + b is
   (A) a (B) b (C) $-\frac{b}{a}$ (D) $-\frac{a}{b}$
4. The maximum number of zeros that a polynomial of degree3 can have is
   (A) 1 (B) 2 (C) 3 (D) None
5. The coordinate of origin are
   (a) (0, 0) (b) (0, 1) (c) (1, 0) (d) (1, 1)
6. The angle between x- axis and y- axis is
   (a) 0° (b) 45° (c) 90° (d) 60°
7. The distance of the point (3, 4) from x- axis is
   (a) 3 (b) 1 (c) 7 (d) 4
8. Find the distance between the point (2, 3) and (4, 5)
   (a) 3 (b) $\sqrt{8}$ (c) 5 (d) 4

CASE - STUDY

9. The Class X students of a secondary school in Krishinagar have been allotted a rectangular plot of land for their gardening activity. Sapling of Gulmohar is planted on the boundary of the plot at a distance of 1m from each other. There is a triangular grassy lawn inside the plot as shown in Fig. The students have to sow seeds of flowering plants on the remaining area of the plot.(Any Four) [1 X 4 = 4]



i. Considering A as the origin, what are the coordinates of A?
   a. (0, 1)
   b. (1, 0)
   c. (0, 0)
   d. (-1, -1)

ii. What are the coordinates of P?

   a. (4, 6)
   b. (6, 4)
   c. (4, 5)
   d. (5, 4)

iii. What are the coordinates of R?

   a. (6, 5)
   b. (5, 6)
   c. (6, 0)
   d. (7, 4)

iv. What are the coordinates of D?

   a. (16, 0)
   b. (0, 0)
   c. (0, 16)
   d. (16, 1)

v. What are the coordinates of P if D is taken as the origin?

   a. (12, 2)
   b. (-12, 6)
   c. (12, 3)
   d. (6, 10)

Solve: [1X 4=4]

10. using prime factorization, find the HCF and LCM of:

   (i) 8, 9 and 25

11. Use Euclid's division algorithm to find the HCF of: 135 and 225

12. Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively**:** 1/4, -1

13. Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively**:** $\sqrt{2}$, 1/3

Solve: Each carry two marks (Any Five) **[2 X 5 = 10]**

14. Using Euclid's division algorithm, find the HCF of 405 and 2520
15. Using prime factorization, find the HCF and LCM of 36 and 84
16. Find the zeros of the given quadratic polynomial and verify the relationship between the zeros and the coefficients : $6x^2 - 7x - 3$
17. Find the quadratic polynomial such that sum of its zeros is 10 and difference between zeros is 8.
18. Divide the polynomial p(x) by the polynomial g(x) and find the quotient and remainder:

    $P(x) = x^3 + 5x - 3$, $g(x) = x^2 - 2$
19. Divide the polynomial p(x) by the polynomial g(x) and find the quotient and remainder:

    $p(x) = x^4 - 3x^2 + 4x + 5$, $g(x) = x^2 + 1 - x$

Solve: Each carry three marks **[3 X 3 = 9]**

20. Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.: $x^2 - 2x - 8$
21. Prove $\sqrt{3}$ is irrational number.

    OR

    Prove $5 + \sqrt{3}$ is irrational number.
22. Name the type of quadrilateral formed, if any, by the following points, and give reasons for your answer**:** (–1, –2), (1, 0), (–1, 2), (–3, 0)

Solve: Each carry five marks (Any Three) **[3 X 5 = 15]**

23. . Find the coordinates of the points which divides the line segment joining A (–2, 2) and B (2, 8) into four equal parts.
24. If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of a parallelogram taken in order, find x and y.

25. Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$

26. State whether the given statement is true or false.
    (i) The sum of two rational is always rational.
    (ii) The product of two rational is always rational.
    (iii) The sum of two irrational is always an irrational.
    (iv) The product of two irrational is always an irrational.
    (v) The sum of rational and an irrational is always irrational.

BEST OF LUCK