D.A.V. PUBLIC SCHOOL, THANE
SESSION: 2021 – 2022
PERIODIC TEST – II
SUBJECT: MATHEMATICS

STD: VIII **Max Marks: 40**
Date: 23/09/2021 **Time: 2 Hrs**

General Instructions:

1. This question paper contains two parts A and B.
2. Both Part A and Part B have internal choices.

Part – A:

1. It consists of two sections- I and II
2. Section I has 7 questions. Internal choice is provided in 3 questions.
3. Section II has two case study-based questions. Each case study has 5 case-based sub-parts. An examinee is to attempt any 4 out of 5 sub-parts.

Part – B:

1. Question No 10 to 12 are Very Short Answer Type questions of 2 marks each.
2. Question No 13 to 15 are Short Answer Type questions of 3 marks each.
3. Question No 16 to 17 are Long Answer Type questions of 5 marks each.
4. Internal choice is provided in 1 question of 2 marks, 1 question of 3 marks and 1 question of 5 marks.

PART - A
Section-I
(Section I has 7 questions of 1 mark each. Internal choice is provided in 3 questions.)

Q1. Find the difference between 132^2 and 131^2.

Q2. Evaluate: $\frac{\sqrt{25}+\sqrt{121}}{\sqrt{256}}$

(OR)

Evaluate: $\frac{\sqrt{36}\times\sqrt{81}}{\sqrt{9}}$

Q3. Find the cube root of $2\frac{43}{343}$

Q4. In the given table '**a**' and '**b**' vary inversely. Find the values of **x** and **y**.

a	50	**x**	15
b	3	6	**y**

(OR)

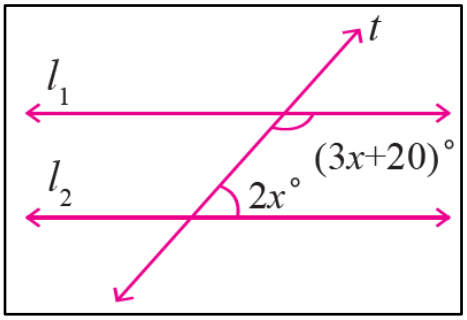
Find the value of '**x**' if the value of **y** = 98 and the constant of variation (k) = $\frac{1}{7}$, where x and y vary directly.

Q5. Find the value of $\mathbf{x}$, if $2.8\,\mathbf{x} = 11.4 \times 11.4 - 8.6 \times 8.6$

(OR)

Evaluate $(\mathbf{97})^{\mathbf{2}}$ using suitable identity.

Q6. In the given figure, $l_1 \parallel l_2$, 't' is the transversal. Find the value of $\boldsymbol{x}$.



Q7. Write the co-ordinates of a point that lie on y-axis?

Section-II

(Case study-based questions are compulsory. Attempt any four sub-parts of each question. Each sub-part carries 1 mark.)

Case study based – 1

Q8. In the outskirts of the city New Delhi, Ramesh is having a huge plot. Sapling of Gulmohar is planted on the boundary at equidistant from each other. In the plot, Ramesh builds his house in the square area PQRS. In the remaining part of plot, Ramesh wants to plant grass.

(i) The coordinates of vertices P and R of square PQRS are respectively:

a) (2, 3), (6, 3) b) (3, 2), (3, 6)

c) (2, 1), (6, 5) d) (3, 6), (3, 2)

(ii) The coordinates of mid-point of diagonal PR & QS are:

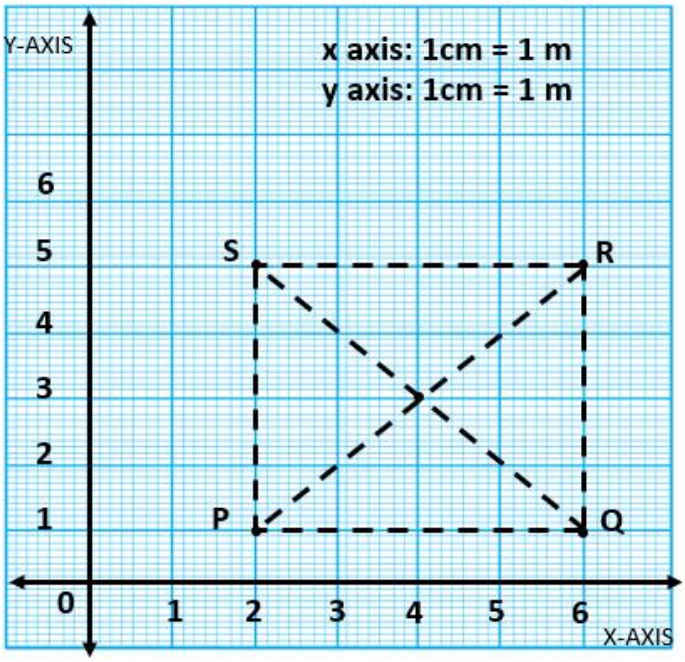
a) (3, 4) b) (3, 2)

c) (4, 2) d) (4, 3)

(iii) The coordinates of vertices Q and S of square PQRS are respectively:

a) (1, 6),(10, 2) b) (6, 1),(2, 5)

c) (1, 2),(10, 6) d) (2, 10), (6, 1)



iv) The side of square PQRS is

a) 8 m b) 5 km

c) 6 m d) 4 m

v) The area of square PQRS is

a) 28 m^2 b) 20 km^2

c) 16 m^2 d) 28 m^3

Case study based – 2

Q9. A person is making a wheel using spokes. He wants to fix equal spokes in such a way that the angles between any pair of consecutive spokes are equal. Ex:

No. of spokes	3	4	5
Angle between a pair of consecutive spokes	120°	90°	72°



(i) Mention the type of variation between the number of spokes and the angles formed between the pairs of consecutive spokes.

a) Direct b) Inverse c) No variation d) none of these

(ii) Calculate the angle between a pair of consecutive spokes on a wheel with 10 spokes.

a) 24° b) 100° c) 36° d) 80°

(iii) Calculate the number of spokes if the angle between a pair of consecutive spokes is 30°.

a) 15 b) 12 c) 14 d) 9

(iv) What is the angle between a pair of consecutive spokes on a wheel with 15 spokes?

a) 24° b) 20° c) 17° d) 10°

(v) How many spokes would be needed if the angle between a pair of consecutive spokes is 20°.

a) 13 b) 10 c) 22 d) 18

Part –B (2 marks each)

(All questions are compulsory. In case of internal choices, attempt anyone.)

Q10. Evaluate: $\sqrt[3]{61+\sqrt[3]{25+\sqrt[3]{8}}}$

(**OR)**

Evaluate: $\sqrt[3]{\frac{0.216}{0.125}} \div \sqrt{\frac{0.64}{2.25}}$

Q11. A tank can be filled in 6 days by 14 pumps. If the tank has to be filled in 4 days, find the number of pumps required.

Q12. Factorize $\mathbf{25a^2 + 9b^2 + 16c^2 - 30ab + 24bc - 40ac}$, using suitable identity.

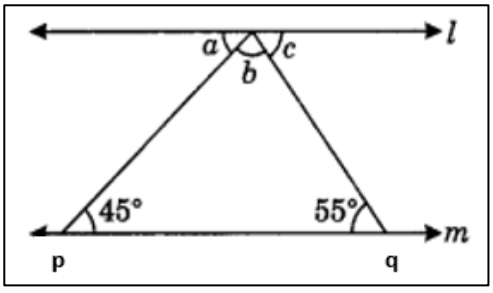
Part –B (3 marks each)

(All questions are compulsory. In case of internal choices, attempt anyone.)

Q13. A gardener has 1000 plants. He wants to plant these in such a way that the number of rows and the number of columns remain same. Find the number of plants he needs more for this arrangement.

Q14. How long will a train 210 m take to clear a platform of length 165 m, if its speed is 50 km/hr?

Q15. In the given figure $l \parallel m$. 'p' and 'q' are transversals Find the values of angle a, b and c.



(OR)

Draw a line segment AB of length 6.3 cm, divide it internally in the ratio 3:4. What is the length of each part?

Part –B (5 marks each)
(All questions are compulsory. In case of internal choices, attempt anyone.)

Q16. An electronic shop records the number of TVs sold over the course of a week. The number of TV's sold each day is shown in the table below. Represent the data in a line graph.

Days	Monday	Tuesday	Wednesday	Thursday	Friday
TVs sold	5	3	7	4	8

Q17. If $x^2 + \frac{1}{x^2} = 27$, find the value of :

(i) $x + \frac{1}{x}$

(ii) $x - \frac{1}{x}$

(OR)

a) Find the product of $\left[\frac{x^2}{5} + \frac{y^2}{7}\right]\left[\frac{x^2}{5} - \frac{y^2}{7}\right]$, using suitable identity.

b) Factorize $x^4 + 8x^2 - 65$, using suitable identity.

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