DELHI PUBLIC SCHOOL NEWTOWN
SESSION 2023-24
MONDAY TEST

CLASS: IX **FULL MARKS: 40**
SUBJECT: MATHEMATICS **DATE: 19.06.23**

Instructions:

- **The paper consists of two printed pages.**
- **All questions are compulsory.**
- **Copy the question number carefully before answering the questions.**

SECTION: A

1. Choose the correct option **[1× 5 = 5]**

i) If $x + \frac{1}{x} = 3$; then the value of $x^2 + \frac{1}{x^2}$ is:

a) 3 **b) 12** **c) 11** **d) 7**

ii) Two rational numbers between $\frac{3}{7}$ and $\frac{4}{7}$ are:

a) $\frac{1}{2}, \frac{18}{35}$ **b) $\frac{41}{70}, \frac{2}{3}$** **c) $\frac{5}{14}, \frac{31}{70}$** **d) $\frac{9}{14}, \frac{43}{70}$**

iii) The term to be added to $4p^2 + 25q^2 - 16pq$ to make it a perfect square trinomial is:

a) -4pq **b)12pq** **c) -2pq** **d) 4pq**

iv) The factors of $16(x + y)^2 - 9(x – y)^2$ are:

a) (x + 7y)(x - 7y) **b) (x + 5y)(x - 5y)** **c) (x + 7y)(7x + y)** **d) (x + 7y)(y -7x)**

v) Every rational number is:

a) Whole number **b) Natural number** **c) Integer** **d) Real number**

SECTION: B

2. Factorise: **[3+3]**

i) $5a^4 – 5a^3 + 30a^2 - 30a$

ii) $2a^2b^2 + 3ab - 9$

3. By using suitable identities, evaluate the following: $(10.1)^3$ **[3]**

4. Factorise: $3 – 5x + 5y – 12(x - y)^2$ **[3]**

5. Convert 2.2565656…… into a rational number. **[3]**

6. The difference between C.I. and S.I. on a certain sum of money at 10% per annum for 3 years is ₹ 620. Find the principal if the interest is compounded annually. [5]

7. If $a = \frac{1}{a-5}$, find $i)\ a - \frac{1}{a}$ ii) $a^2 - \frac{1}{a^2}$ [5]

8. Find the amount on ₹ 25000 for 3 years at 12% p.a, compounded annually and also find C.I after 3 years. [5]

9. The present population of the town is 15625. If the population increases 4% in the 1^{st} year and then decreases 4% in the 2^{nd} and 3^{rd} year respectively, find the population of the town at the end of the 3 years. [5]