CLASS: VIII **FULL MARKS: 80**

SUBJECT: MATHEMATICS **TIME: 2 HOUR 30 MINUTES**

Section – A (40 Marks)

(Attempt all the questions from this section)

1. Answer the following questions: **[3 + 3 + 4]**

a) Evaluate $\{q^m/(q^m + q^n)\} + \{1/(q^{m-n}+1)\}$

b) Solve: $^{(3y+2)}/_3 + 1 \leq 4$, $y \in W$

c) The sum of four consecutive odd numbers is 88, find the prime number out of these number.

2. **[3 + 3 + 4]**

a) Factorize: 4a + 4b − 5cx − 5bx + 4c − 5ax

b) If n(P − Q) = 15, n(Q − P) = 20 and n(P ∩ Q) = 5, find n(Q) = ?

c) Anu wants to purchase a television whose marked price is Rs. 46000 excluding 15% GST. But she has Rs. 46000 only. So, she requests the shopkeeper to reduce the price of television in such way that she must pay Rs. 46,000 including GST. Find the amount reduced by the shopkeeper.

3. **[3 + 3 + 4]**

a) Using identity property $p^2 - q^2 = (p + q)(p - q)$, find the value of $(3.05)^2 - (1.95)^2$.

b) What sum of money invested at 4% p.a. simple interest for 2 years produces twice as much interest as Rs 6200 in 3 years at 6% p.a. simple interest?

c) Solve: $^{4t-3}/_3 + ^{3t+2}/_2 = t + ^2/_5$

4. **[3 + 3 + 4]**

a) If n(P − Q) = 21, n(Q − P) = 26 and n(P ∩ Q) = 9, find n(Q).

b) A trader marks his goods 30% above cost price and allows a discount of 15%. What gain percent does he make?

c) A rectangular garden 60 m by 30 m is divided into four equal parts by two cross-paths 2m wide. Find

i) the area of the cross-paths.
ii) the area of the unshaded portion.

Section - B (40 Marks)
(Attempt any four questions)

5. **[3 + 3 + 4]**

a) A dealer marks his product at such a price that would give him a profit of 8% after allowing a discount of 10%. If a product is marked at Rs. 2040, find its selling price and cost price.

b) Find the quotient and remainder when $(4r^5 + 5r^4 - 13r^3 + 6r^2 - 34r + 7)$ is divided by $(3 + 2r + r^2)$.

c) In what time will Rs 8000 amount to Rs 9,261 at 5% per annum compound interest?

6. **[2 + 2 + 3 + 3]**

a) Evaluate $\{(5/4)^{-1} - (5/3)^{-2}\}^{-1}$

b) Solve: $5x + 2 \leq 17$, $x \in W$, represent solution set on number line.

c) Find P' when Universe set (U) = $\{x | x \in N, X \leq 10\}$, P = {1, 2, 4, 6}.

d) Factorise l2 + 8mn − 2nl − 4lm.

7. **[3 + 3 + 4]**

a) Add 5x + 7y − 9z, 5x − 7y + 2z, x − 3y − 2z, 3z − 6x + 4y by column method.

b) Simplify: $2/5 \times [40/12 + 15/4]$ and name the property of multiplication that is used here.

c) Retailer purchased a sewing machine for Rs. 1500. He sells it at a discount of 25% and still makes a profit of 5%. Find the selling price and the marked price.

8. **[2 + 4 + 4]**

a) A boy was asked to multiply a given number by $2/3$ but he divided the given number by $2/3$. His answer was 40 more than the correct answer. What was the given number?

b) Using the identity property, $(x + p)(x - q) = x^2 + (p + q)x + pq$. Evaluate the given number below.
i) (109 × 91)
ii) (4x + 5) (4x − 6)
c) Oil flows through a cylindrical pipe of internal diameter 8 cm at 5 m per sec. Calculate the volume in litres of Oil discharged by the pipe in one minute.

9. **[3 + 3 + 4]**

a) The product of two numbers is $(m^6 - n^6)$. If one of the numbers is $(m - n)$, then find the other.

b) A new-born elephant weight is 15 kg. How many kilograms might a five-year-old elephant weight if its weight increases by the power of 2 in 5year?

c) The volume of a cuboid is 448 cm^3. Its height is 7 cm, and the base is a square. Find
(i) A side of the square base
(ii) Surface area of the cuboid.

10. **[3 + 3 + 4]**

a) Find the compound interest on Rs 4000 for 3 years if the rates of interest for the first, second and third year are respectively 2%, 3% and 4% per annum.

b) The volume of milk in a tank is twice of that in the other. If, we draw out 50litres from the first and add it to other, the volumes of water in each tank will be the same. Find the volumes of water in each tank.

c) The surface area of a cube is 294 cm^2. Find
(i) The length of an edge
(ii) Volume of the cube.