NUMERICAL APTITUDE – V

If the denominator of a fraction is equal to ten or a tenth power then it is called a decimal number.

For e.g: $\dfrac{17}{10}$, $\dfrac{129}{100}$, $\dfrac{857}{1000000}$

= 1.7   = .129   = .000857

The number of zeroes in the denominator of the number of significant digits after the decimal is called the number of decimal places.

For E.g: The number of decimal places of 0.0568 is 4 because the number of significant digits after decimal is 4.

Multiplication of decimal numbers:

To multiply two or more decimal numbers first take each and every number as an integer by neglecting the decimal and get the integer product. Then get the number of decimal places of each and every number and take their sum. This will become the number of decimal places of the product and place the decimal accordingly.

Division of a decimal number(s) with another decimal number:

To carry out division with decimal number move the decimal to right in the numerator as well as in the denominator such that the denominator becomes an integer. Then carry out the integer division of numerator with the denominator. The number of decimal places of the division is equal to the number of decimal places left out in the numerator (if any).

Directions (Q. 1-11): What will come in place of the question mark (?) in the following questions?

1.   (69.3 × 15.2) + (4.5 × 19.8) = ?
    1) 1142.46   2) 1152.46   3) 1412.46   4) 1124.46   5) None of these
    ANSWER: 1
    First treat the decimal numbers as integers, and carry out the multiplication. The product
    of 693 and 152 is 105336. The numbers 69.3 and 15.2 each contain one decimal place
    each. So the product will have two decimal places i.e. 69.3 × 15.2 = 1053.36
    In the same way 4.5 × 19.8 = 89.10 = 89.1
    ∴ (69.3 × 15.2) + (4.5 × 19.8) = 1053.36 + 89.1
                        = 1142.46

2. $\dfrac{3.2 \times 1.4 \times 5.5}{0.4} = ?$
    1) 24.64   2) 61.60   3) 26.46   4) 60.61   5) None of these
    ANSWER: 2
    For solving the given equation, first remove all the decimal points.

$$\frac{\overset{8}{\cancel{32}}\times14\times55}{\cancel{4}} = 8\times14\times55 = 6160$$

The numerator has 3 decimal places and the denominator has one. So in the result we get

two decimal places.

$$\therefore \quad \frac{3.2\times1.4\times5.5}{0.4} = 61.60$$

3. 0.2 × 8.6 ÷ 0.4 × 45 = ?
    1) 193.5   2) 153.9   3) 197.5   4) 157.9   5) None of these

    ANSWER: 1

    The given equation is $\dfrac{0.2\times8.6\times45}{0.4}$

    Removing the decimal places $\dfrac{\overset{43}{\cancel{2}}\times86\times45}{\cancel{4}} = 43\times45 = 1935$

    Cancelling the decimal place in the denominator with the numerator, we have one deci-

    mal place.

    $$\frac{0.2\times8.6\times45}{0.4} = 193.5$$

4. $(12.11)^2 + (?)^2 = 732.2921$
    1) 20.2   2) 24.2   3) 23.1   4) 19.2   5) None of these

    ANSWER: 2

    For calculating the square of $(12.11)^2$ convert it in the form of $(a+b)^2$

    Here a = 12   b = 0.11

    $\because (a+b)^2 = a^2 + 2.a.b + b^2$

    $(12.11)^2 = (12+0.11)^2 = (12)^2 + 2\times12\times0.11 + (0.11)^2$

    $\qquad\qquad = 146.6521$

    $(?)^2 = 732.2921 - 146.6521$

    $\qquad = 585.64$

    $\therefore ? = \sqrt{585.64} = 24.2$

5. (5 × 7)% of (34 × 55) + 456.60 = 699.1 + ?
    1) 412   2) 422   3) 418   4) 428   5) None of these

    ANSWER: 1

    $$\frac{5\times7\times34\times55}{100} + 456.60 = 699.1 + ?$$

    654.50 + 456.60 = 699.1 + ?

    1111.10 = 699.1 + ?

    ? = 1111.1 − 699.1

    = 412

6. 55% of 560 − 28% of ? = 229.6

1) 250   2) 260   3) 300   4) 320   5) None of these

ANSWER: 5

$$\frac{55}{100} \times 560 - \frac{28}{100}(?) = 229.6$$

$$\frac{28}{100}(?) = 308 - 229.6 = 78.4$$

$$? = 78.4 \times \frac{100}{28} = \frac{7840}{28} = 280$$

7. 12.5% of 350 × 8.4% of 250 = ?

   1) 831.25   2) 913.50   3) 918.75   4) 1050   5) None of these

ANSWER: 3

12.5% of 350 = $\frac{1}{8}$ th of 350 = $\frac{350}{8}$ = 43.75

8.4% of 250 = 84% of 25 = 25% of 84 = 21

∴ 12.5% of 350 × 8.4% of 250 = 43.75 × 21

                           = 918.75

8. $\frac{1}{6}$ of 92% of $1\frac{1}{23}$ of (650) = 85 + ?

   1) 18   2) 21   3) 19   4) 28   5) None of these

ANSWER: 3

$$\frac{1}{6} \text{ of } 92\% \text{ of } 1\frac{1}{23} \text{ of } (650) = \frac{1}{\cancel{6}} \times \frac{\cancel{92}^{4}}{\cancel{100}} \times \frac{\cancel{24}^{4}}{23} \times \cancel{650}$$

$$= \frac{4 \times 4 \times 65}{10} = \frac{1040}{10} = 104$$

104 = 85 + ?

∴ ? = 104 − 85 = 19

9. 14% of 80 + ?% of 90 = 31.9

   1) 16   2) 23   3) 18   4) 26   5) None of these

ANSWER: 2

$$\frac{14 \times 80}{100} + \frac{? \times 90}{100} = 31.9$$

14 × 80 + 90 ×? = 31.9 × 100

1120 + 90 × ? = 3190

90 × ? = 3190 − 1120 = 2070

$$? = \frac{2070}{90} = 23$$

10. 36% of 850 + ?% of 592 = 750

   1) 73   2) 89   3) 82   4) 75   5) None of these

ANSWER: 4

36% of 850 = 306

∴ ?% of 592 = 750 − 306 = 444

$$\therefore \quad ? = \frac{44400}{592} = 75$$

11. $\frac{2}{5}$ th of $\frac{3}{4}$ th of $\frac{1}{4}$ th of 26000 = ?

    1) 1900   2) 1950   3) 1980   4) 1930   5) None of these

    ANSWER: 2

$$\frac{2}{5} \times \frac{3}{4} \times \frac{1}{4} \times 26000 = \frac{3 \times \overset{650}{\cancel{2600}}}{4}$$

$$= 1950$$

12. The sum of the digits of a two digit number is 12. If the new number formed by reversing the digits greater than the original number by 54, then what will be the original number?

    1) 28   2) 48   3) 39   4) 93   5) None of these

    ANSWER: 3

    Let ab be the two digit number.

    Then a + b = 12

    Also ba − ab = 54

    $\Rightarrow$ (10b + a) − (10a + b) = 54

    $\therefore$ 9(b − a) = 54

    b − a = 6

    $\therefore$ b = 9, a = 3

    $\therefore$ The two digit number is 39.

        Directions (13-16): In each of these questions an equation is given with a question mark (?) in place of the correct figure on the right hand side which satisfies the equality. Based on the values on the left hand side and the symbol of equality given, you have to decide which of the following figures will satisfy the equality and thus come in place of the question mark.

    Symbols stand for:

    >   greater than

    =   equal to

    <   lesser than

    $\geq$ either greater than or equal to

    $\leq$ either lesser than or equal to

13. $\sqrt{21 \times 8 - 24} \geq ?$

    1) $\pm$ 12   2) 12   3) − 12   4) 12^2 5) -12^2

    ANSWER: 1

$$\sqrt{21 \times 8 - 24} = \sqrt{168 - 24}$$

$$= \sqrt{144}$$

$$= 12$$

14. $(\sqrt{64} + 456) \div 8 < ?$

    1) 53   2) − 58   3) 57.9   4) 56   5) 59

ANSWER: 5

$(\sqrt{64} + 456) \div 8 = (8 + 456) \div 8$
$= (8 + 456) \div 8$
$= 464 \div 8$
$= 58$

∴ ? = 59

15. $\pm[(5 \times 3) + (57 \div 3)] \geq ?$

    1) 35   2) 33   3) − 34   4) 34   5) 31

ANSWER: 3

$\pm[(5 \times 3) + (57 \div 3)] = \pm[15 + 19]$
$= \pm 34 \geq -34$

Directions (16-20): In each of these questions an equation is given with a question mark (?) in place of a correct symbol. Based on the values on the right hand side and the left hand side of the question mark, you have to decide which of the following symbols will come in place of the question mark.

    Give answer   If in place of question mark (?) following will come

    1)   > (greater than)
    2)   = (equal to)
    3)   < (lesser than)
    4)   ≥ (either greater than or equal to)
    5)   ≤ (either lesser than or equal to)

16. $[(56 \div 7) + (72 \div 8)] ? [(112 - 27) \div 5]$

ANSWER: 2

$[(56 \div 7) + (72 \div 8)] = (8 + 9) = 17$
$[(112 - 27) \div 5] = [85 \div 5] = 17$
∴ ? should be replaced by '='

17. $[107 - (67 + 69)] ? [(15)^2 \times 3 - 646]$

ANSWER: 3

$[107 - (67 + 69)] = [107 - 136] = -19$
$[(15)^2 \times 3 - 646] = [225 \times 3 - 646] = [675 - 646] = 19$
∴ ? should be replaced by '<'

18. $[\{65 - (7)^2\} \times 2] ? [4^2 \times 3 - (4 \times 3)]$

ANSWER: 3

$[\{65 - (7)^2\} \times 2] = [\{65 - 49\} \times 2] = 16 \times 2 = 32$
$[4^2 \times 3 - (4 \times 3)] = [16 \times 3 - 12] = [48 - 12] = 36$
∴ ? should be replaced by '<'

19. $\left|\left(\sqrt{289} - \sqrt{81}\right)\right| ? \pm[\sqrt{64}]$

ANSWER: 4

$[(\sqrt{289} - \sqrt{81})] = (17 - 9) = 8$
$\pm[\sqrt{64}] = \pm 8$
∴ ? should be replaced by '≥'

20. $[(4 \times 8) + 15] ? [\sqrt{729} + 19]$

ANSWER: 1

$[(4 \times 8) + 15] = [32 + 15] = 47$

$[\sqrt{729} + 19] = 27 + 19 = 46$

∴ ? should be replaced by '>'