PRISM WORLD

**Std.: 10 (English)** **Maths - I** **Marks: 40**

**Date:** **Time: 2 hour**

**Chapter: 1 to 4**

**Q.1 A) Solve Multiple choice questions.** **(4)**

**1)** If x = a, y = b is the solution of the equation x - y = 2 and x + y = 4, then the value of a and b are, respectively

a. 3 and 5 b. 5 and 3 c. 3 and 1 d. - 1 and - 3

**2)** A shopkeeper bought a TV from a distributor at a discount of 25% of the listed price of Rs. 32000. The shopkeeper sells the TV to a consumer at the listed price. If the sales are intra-State and the rate of GST is 18%. the selling price of the TV including tax (under GST) by the distributor is

a. Rs. 32000 b. Rs. 24000 c. Rs. 28320 d. Rs. 26160

**3)** Find the sum of first 50 natural numbers.

a. 1450 b. 1275 c. 1325 d. 1280

**4)** Factorisation of $p^4 - 81$ is

a. $(p^2 - 9)(p^2 + 9)$ b. $(p - 3)(p + 3)(p^2 + 9)$

c. $(p - 3)^2 (p + 3)^2$ d. None of these

**B) Solve the following questions.** **(4)**

**1)** If 15x + 17y = 21 and 17x + 15y = 11, then find the value of x + y.

**2)** Find the sum of first n natural numbers.

**3)** Determine whether the given value of variable is the roots of given quadratic equation.

$x^2 + 4x - 5 = 0$, $x = -1$

**4)** Find the number of shares received when Rs. 60,000 was invested in the shares of FV Rs. 100 and MV Rs. 120.

**Q.2 A) Complete the following Activities. (Any Two)** **(4)**

**1)** Write the correct number in the given boxes from the following A.P.

3, 6, 9, 12, .....

Here $t_1$ = _____, $t_2 = 6$, $t_3 = 9$, $t_4$ = _____

$t_2 - t_1$ = _____, $t_3 - t_2$ = _____

$\therefore$ d = _____

**2)** Smita has invested Rs 12,000 and purchased shares of FV Rs 10 at a premium of Rs 2. Find the number of shares she purchased. complete the given activity to get the answer.

FV = Rs 10, Premium = Rs 2,.

$\therefore$ MV = FV + _____ = 10 + _____ = _____

$\therefore$ Number of shares = $\frac{\text{Total investment}}{\text{MV}}$ = $\frac{12000}{12}$ = _____ shares

Smita has purchased _____ shares.

**3)** Complete the following table to draw the graph of 3x - y = 2

| | | |
|---|---|---|
| x | _____ | - 1 |
| y | 1 | _____ |
| (x, y) | _____ | _____ |

**B) Solve the following questions. (Any four)** **(8)**

**1)** If 50 shares of FV Rs. 10 were purchased for MV of Rs. 25. Company declared 30% dividend on the shares then find :
(1) Sum investment (2) Dividend received (3) Rate of return.

**2)** Form a quadratic equation whose roots are 4 and -12.

**3)** State with reason whether the point (3, – 2) will lie on the graph of the equation 5m – 3n = – 21.

**4)** How many terms are there in the A.P. 187, 194 , 201, ..., 439?

**5)** Shreekar bought a Laptop with 10% discount on printed price. The printed price of that Laptop was Rs. 50,000. 18% GST was charged on discounted price. Find the amount of CGST and SGST. What amount did Shreekar pay ?

**Q.3 A) Complete the following Activity (Any one)** **(3)**

**1)** The total value (with GST) of remote controlled toy car is ₹ 2360. Rate of GST is 18% on toys. Complete the following activity to find the taxable value for the toy car.

**Activity:**

Total value for toy car with GST = ₹ 2360

Rate of GST = 18%

Let taxable value for toy car be ₹ x

∴ GST = $\frac{18}{100} \times x$

∴ Total value for toy car = (taxable value for toy car) + ☐ .....Formula

∴ 2360 = $\square + \frac{\square}{100} \times x$

∴ 2360 = $\frac{\square}{100} \times x$

∴ 2360 x 100 = 118x

∴ $x = \frac{2360 \times 100}{\square}$

∴ Taxable value for toy car is ₹ ☐

**2)** If the 9th term of an A. P. is zero then prove that the 29th term is double the 19th term.

Let the first term of the A.P. = a
Common difference = d
Since $t_n = a + (n - 1)d$
According to the given condition
$9^{th}$ term = $t_9 = 0$

∴ $t_9$ = _____

$0 = a + 8d$

∴ $a = -8d$ ... (1)

Now $t_{29} = a + (n - 1)d$
$= a + (29 - 1)\, d$
= _____

∴ $t_{29}$ = _____ ... [From (1)]

∴ $t_{29} = 20d$ ... (2)

and $t_{19} = a + (n - 1)\, d$

∴ $= a + (19 - 1)\, d$

$= a + 18d$

∴ = _____ ... [From (2)]

$t_{19} = 10d$ ... (3)

$t_{29}$ = 20d ... [From (2)]

$t_{29}$ = _____ ... [From (3)]

$t_{29}$ = _____

$\therefore$ Hence, the 29th term is double the $19^{th}$ term.

**B) Solve the following questions. (Any two)** **(6)**

**1)** How many two digit numbers divisible by 4 ?

**2)** Prashant bought 50 shares of FV Rs. 100, having MV Rs. 180. Company gave 40% dividend on the shares. Find the rate of return on investment.

**3)** Solve the following simultaneous equations.
$99x + 101y = 499$ ; $101x + 99y = 501$

**4)** Find the value(s) of k for which the following quadratic equation has equal roots:
$3kx^2 = 4(kx - 1)$

**Q.4 Solve the following questions. (Any two)** **(8)**

**1)** Draw the graphs representing the equations $4x + 3y = 24$ and $3y = 4x + 24$ on the same graph paper. Find the area of the triangle formed by these lines and the X-axis.

**2)** The speed of a boat in still water is 11 km/hr. It can go 12 km up-stream and return downstream to the original point in 2 hours 45 minutes. Find the speed of the stream.

**3)** A shopkeeper buys an article whose list price is Rs. 8000 at some rate of discount from a wholesaler. He sells the article to a consumer at the list price. The sales are intra-state and the rate of GST is 18%. If the shopkeeper pay a tax (under GST) of Rs. 72 to the State Government, find the rate of discount at which he bought the article from the wholesaler.

**Q.5 Solve the following questions. (Any one)** **(3)**

**1)** The product of two consecutive natural numbers is 31 less than the sum of their squares. Find the numbers.

**2)** Using information given in the following figure, find the length and breadth of this rectangle in cm.