**ONE TWO ACADEMY**

**STD 10 MATHEMATICS**

**Total:- 25 marks** **Time:- 45 minutes**

**Answer the following questions:-** **4 x 1 = 4**

1. If BXA = {(-2,3), (-2,4), (0,3), (0,4), (3,3), (3,4)} find B.
2. Find the domain of f(x) = $\frac{1}{x-1}$.
3. Given f(x) = 2x - $x^2$ , find f(1).
4. If n(A) = n(B), then f is a bijection from A to B. Justify.

**Answer any three of the following questions:-** **3 x 2 = 6**

5. Find k if $f\,o\,(k)$ = 5 , where f(k) = 2k -1.
6. A function f: **N** —> R is a into function defined by f(x) = x, for what Co-domain the function becomes onto ?
7. Distinguish function and relations.
8. A plane is flying at a speed of 500 km per hour. Express the distance d' travelled by the plane as a function of time t in hours.

**Answer any three of the following questions:-** **3 x 5 = 15**

9. If A = B = C ={0,1}, find A X (B X C).
10. A function f is defined by f(x) = 2x - 3

(i) find $\frac{f(0)+f(1)}{2}$.

(ii) Find x such that f(x) = 0.

(iii) Find x such that f(x) = x.

(iv) Find x such that f(x). = f(1-x).

11. Let f be a function f: N—> N defined by f(x) = 2x + 3 , x ∈ **N**

(i) Find the images of 1, 2 and 3. (ii) Find the pre-images of 29, 53

12. Given that $h(x) = f \circ g(x)$, fill in the table for $h(x)$

| $x$ | $f(x)$ |
|---|---|
| 1 | 2 |
| 2 | 3 |
| 3 | 1 |
| 4 | 4 |

| $x$ | $g(x)$ |
|---|---|
| 1 | 2 |
| 2 | 4 |
| 3 | 3 |
| 4 | 1 |

| $x$ | $h(x)$ |
|---|---|
| 1 | 3 |
| 2 | - |
| 3 | - |
| 4 | - |

All the Best