

10 MATHS [?] ENGLISH MEDIUM
2019-20

UNIT TEST

RELATIONS AND
FUNCTIONS

TIME: 45 min SECTION - A MARKS: 25

CHOOSE THE CORRECT ANSWER:-

• $|X| = 25$

1) If $n(A \times B) = 6$ and $A = \{1, 3\}$ then
 $n(B)$ is —

(1) 1 (2) 2 (3) 3 (4) 6

Ex. 1.3 - (14) (1)

2) If there are 1024 relations from a
set $A = \{1, 2, 3, 4, 5\}$ to a set B , then
the number of elements in B is —

(1) 3 (2) 2 (3) 4 (4) 8

Ex. 1.5 (4)

3) If the ordered Pairs $(a+2, 4)$ and
 $(5, 2a+b)$ are equal then (a, b) is —

(1) $(2, -2)$ (2) $(5, 1)$ (3) $(2, 3)$ (4) $(3, -2)$

Ex. 1.5 (4)

- 4) ~~Write~~ Write the names of functions.
- 5) Using the functions f and g given below, find $f \circ g$ and $g \circ f$. Check whether $f \circ g = g \circ f$. B. Pg 12
- i) $f(x) = x - 6$, $g(x) = x^2$ Ex 5
- ii) $f(x) = \frac{e}{x}$, $g(x) = 2x^2 - 1$ F (i) (ii)

III) Answer in detail:- $2 \times 5 = 10$

1) Consider the functions $f(x)$, $g(x)$, $h(x)$ as given below: Show that $(f \circ g) \circ h = f \circ (g \circ h)$ in each case.

i) $f(x) = x - 1$, $g(x) = 3x + 1$ and $h(x) = x^2$

ii) $f(x) = x - 4$, $g(x) = x^2$ and $h(x) = 3x - 5$ B. Pg 13 ⁴⁻¹⁼⁵ (i) (ii)

2) If the function $f: \mathbb{R} \rightarrow \mathbb{R}$ is defined by

$$f(x) = \begin{cases} 2x + 7, & x < -2 \\ x^2 - 2, & -2 \leq x < 3 \\ 3x - 2, & x \geq 3. \end{cases}$$

$$i) \frac{1}{2}(u)$$

$$ii) \frac{1}{2}(-2)$$

$$iii) \frac{1}{2}(u) + 2 + f(u)$$

$$iv) \frac{1}{2}(u) - 2 + \frac{1}{2}(u)$$

B. Ex. 1.19.

$$\frac{1}{2}(u-2)$$