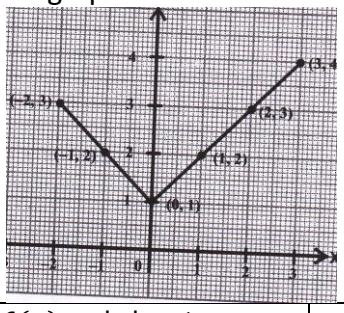
INDIAN SCHOOL MUSCAT
DEPARTMENT OF MATHEMATICS
CLASS TEST – OMR FORMAT

CLASS: XI **TOPIC: RELATIONS & FUNCTIONS**

1.	Given $R = \{(x, y):\ y = x - 3, x, y\ \epsilon\ Z\}$. State which of the ordered pairs belong to the relation:			
	A) (5, 2)	B) (0, 3)	C) (7, -4)	D) (-4, 1)
2.	If R is a relation from a finite set A having m elements to a finite set B having n elements, then the number of relations from A to B is :			
	A) 2^{mn}	B) $2^{mn} - 1$	C) $2mn$	D) m^n
3.	If $f(x) = ax + b$, where a and b are integers, $f(-1) = -5$ and $f(3) = 3$, then a and b are :			
	A) -3 and 1	B) 2 and -3	C) 0 and 2	D) 2 and 3
4.	Let R be a relation on N defined by $x + 2y = 8$. The domain of R is :			
	A) $\{2, 4, 8\}$	B) $\{2, 4, 6, 8\}$	C) $\{2, 4, 6\}$	D) $\{1, 2, 3, 4\}$
5.	Let $A = \{1, 3, 5\}$ and $B = \{2, 4\}$, find R given by $R = \{(a, b): (a, b)\epsilon\ A \times B,\ a > b\}$.			
	A) $\{(1,2), (3,2), (1,4)\}$	B)$\{(3,2), (5,2), (5,4)\}$	C) $\{(3,2), (3,4), (1,4)\}$	D) $\{(1,2), (5,2), (5,4)\}$
6.	If $R = \{(x, y): x, y\epsilon\ Z, x^2 + y^2 \leq 4\}$ is a relation on Z, then domain of R is :			
	A)$\{0, 1, 2\}$	B) $\{-2, -1, 0, 1, 2\}$	C) $\{-2, -1, 0\}$	D) $\{-2, -1\}$
7.	If $(x - 1,\ y + 3) = (2,\ x + 4)$, find x and y.			
	A) $x = 1, y = 2$	B) $x = -1, y = -2$	C) $x = 3, y = 4$	D) $x = 2, y = 6$
8.	If $R = \{(x, y): y = 2x + 7, where\ x\epsilon[-5, 5]\}$ is a relation, then find the range of R.			
	A)$[-3, 17]$	B) $[-5, -5]$	C) $[-3, -7]$	D) $[-6, -1]$
9.	If the set A has p elements, B has q elements, then the number of elements in $A \times B$ is :			
	A) $p + q$	B) $p + q + 1$	C) pq	D) p^2
10.	The domain of $f(x) = \|x - 1\| + \|1 + x\|$ is :			
	A)$(-\infty, \infty)$	B)$(1, \infty)$	C)$(-1, \infty)$	D)$(-1, 1)$
11.	The domain of the function $f(x) = \frac{x-1}{x-2}$ is :			
	A) R	B) $R - \{2\}$	C) $R - \{1\}$	D) $R - \{0\}$

12.	Find the domain and range of the function $f(x) = 2 - 3x^2$.			
	A) $R;\ (-\infty, -3]$	B) $R;\ (-\infty, 2]$	C) $R;\ (-\infty, 2)$	D) $R;\ (2, \infty)$
13.	The range of the function $f(x) = -\|x - 1\|$ is:			
	A)$(0, \infty)$	B) $[0, \infty)$	C) $(-\infty, 0]$	D) R
14.	Let R be a relation from a set A to a set B, then			
	A) $R = A \cup B$	B) $R = A \cap B$	C) $R \subset A \times B$	D) $R \subset B \times A$
15.	A function f is defined by $f(x) = 2x^2 + 3$, for all $x\epsilon\ R$. Find the element (elements) of the domain which has image 35.			
	A) 4, -2	B) 0, 4	C) 16, -16	D) 4, -4
16.	Find the range of the relation R defined by $R = \left\{(a, b): b = a + \frac{6}{a}\ ,\ a, b\ \epsilon\ N\ and\ a < 6\right\}$			
	A) $\{1, 2, 3\}$	B)$\{5, 7\}$	C) $\{1, 2, 5\}$	D) $\{3, 5, 7\}$
17.	The domain of the function $f(x) = \sqrt{x - 1}$ is :			
	A) $(0, \infty)$	B) $[1, \infty)$	C) $(-\infty, 0)$	D) R
18.	If f and g are real functions defined by $f(x) = x^2 + 7$ and $g(x) = 3x + 5$, then find the value of $f(-2) + g(-1)$.			
	A) 13	B) 10	C) 11	D) 12
19.	If $A = \{1, 2, 3\}$ and $B = \{a, b, c\}$, which of the following relations from A to B are functions? (i) $R_1 = \{(1, c), (2, b), (2, a)\}$ (ii) $R_2 = \{(2, c), (3, c), (1, c)\}$ (iii) $R_3 = \{(1, b), (2, c), (3, a)\}$ (iv) $R_4 = \{(1, a), (1, b), (1, c)\}$			
	A) R_1 and R_4	B) R_2 and R_3	C) R_3 and R_4	D) R_1 and R_2
20.	Which among the following functions represents the given graph : 			
	A) $f(x) = \|x - 1\|$	B) $f(x) = \|x + 1\|$	C) $f(x) = \|x\| + 1$	D) $f(x) = -\|x\| + 1$