RELATIONS AND FUNCTIONS

TYPES OF FUNCTION AND ALGEBRA OF REAL FUN

EXERCISE

Q.1	In a function mapping from set A to set B, each element of set A possesses a	
	image in set B.	
	(a) one and only one	(b) different
	(c) same	(d) many
Q.2	In a function from set A to set B, it is possible for an image to have more than one preimage.	
	(a) True	(b) False
Q.3	Consider R as a relation defined on the set of natural numbers $\{(x, y): y = 2x\}$. Can this relation be characterized as a function?	
	(a) True	(b) False
Q.4	Which of the following does not represent a function?	
	(a) {(1,2), (2,4), (3,6)}	(b) {(-1,1), (-2,4), (2,4)}
	(c) {(1,2), (1,4), (2,5), (3,8)}	(d) {(1,1), (2,2), (3,3)}
Q.5	In this graph Which function is shown? (a) Constant (b) Modulus (c) Identity	Y-Values
	(d) Signum function	

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Q.6 Which function is illustrated in the graph? **Y-Values** (a) Constant (b) Modulus 3 (c) Identity (d) Signum function -6 -4 -2 0 2 4 6 Q.7 What function does the graph represent? Y-Values (a) Constant (b) Modulus (c) Identity (d) Signum function -4 -2 -6 0 2 4 6 $f(x) = \left\{ \frac{|x|}{x} \text{ for } x \neq 0 \text{ and } 0 \text{ for } x = 0 \right\}$ What function is being referred to here? Q.8 (b) Modulus (a) Constant (c) Identity (d) Signum function Q.9 Identify the domain of function |x|. (a) Set of real numbers (b) Set of positive real numbers (c) Set of integers (d) Set of natural numbers Q.10 Determine the range of function |x|. (a) Set of real numbers (b) Set of positive real numbers (c) Set of integers (d) Set of natural numbers Determine the domain of the function $f(x) = \sqrt{9 - x^2}$ Q.11 (b) [0,3] (c) [-3,3] (a) (0,3) (d) (-3,3) Determine the range of the function $f(x) = \sqrt{9 - x^2}$. Q.12 (b) R+ (c) [-3,3] (a) R (d) [0,3]

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ANSWER KEY

- **1.** (a)
- **2.** (a)
- **3.** (a)
- **4.** (c)
- **5**. (c)
- **6.** (a)
- **7.** (b)
- **8.** (d)
- **9.** (a)
- **10.** (b)
- 11. (c)
- **12.** (d)