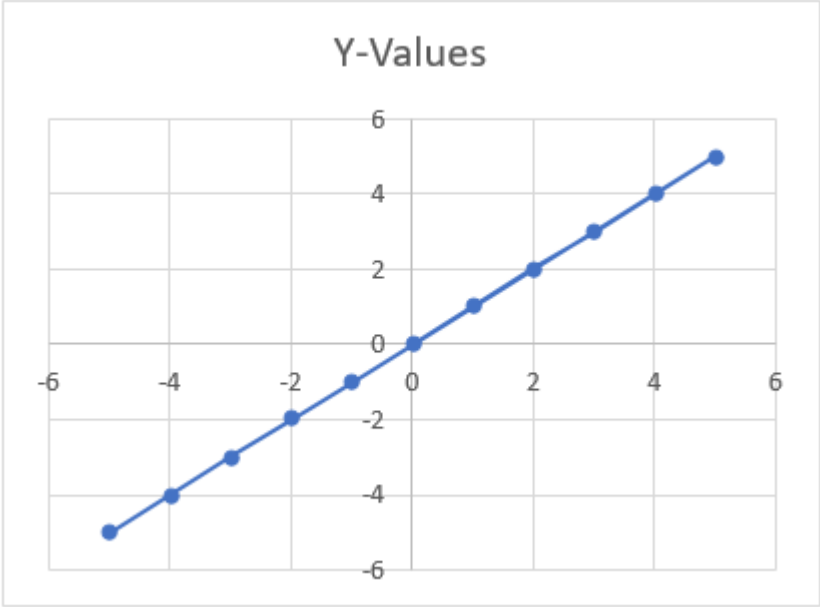


CHAPTER-2  
RELATIONS & FUNCTIONS  
01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	<div style="text-align: center;">  </div> <p>1. Which function is shown in graph?</p> <p>(a) Constant            (b) Modulus            (c) Identity            (d) Signum function</p>	1
2.	<p>Let <math>n(A) = m</math>, and <math>n(B) = n</math>. Then the total number of non-empty relations that can be defined from A to B is</p> <p>(a) <math>m^n</math>            (b) <math>n^m - 1</math>            (c) <math>mn - 1</math>            (d) <math>2^{mn} - 1</math></p>	1
3.	<p>If <math>f(x) = x^2 + 2</math>, <math>x \in \mathbb{R}</math>, then the range of <math>f(x)</math> is</p> <p>(a) <math>[2, \infty)</math>            (b) <math>(-\infty, 2]</math>            (c) <math>(2, \infty)</math>            (d) <math>(-\infty, 2) \cup (2, \infty)</math></p>	1

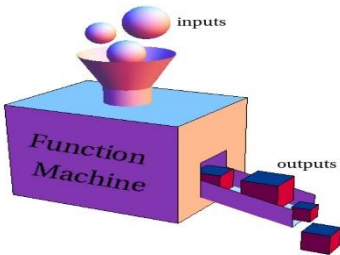
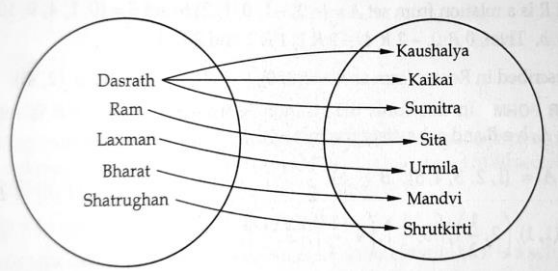


4.	<p>What will be the domain for which the functions <math>f(x) = 2x^2 - 1</math> and <math>g(x) = 1 - 3x</math> are equal?</p> <p>(a) <math>\{-2, 1\}</math></p> <p>(b) <math>\{1/2, -2\}</math></p> <p>(c) <math>[2, 12]</math></p> <p>(d) <math>(-1, 2)</math></p>	1
5.	<p>If <math>[x]^2 - 5[x] + 6 = 0</math>, where <math>[ \cdot ]</math> denotes the greatest integer function, then</p> <p>(a) <math>x \in [3, 4]</math></p> <p>(b) <math>x \in (2, 3]</math></p> <p>(c) <math>x \in [2, 3]</math></p> <p>(d) <math>x \in [2, 4)</math></p>	1
6.	<p>If <math>f(x) = ax + b</math>, where <math>a</math> and <math>b</math> are integers, <math>f(-1) = -5</math> and <math>f(3) = 3</math>, then <math>a</math> and <math>b</math> are equal to</p> <p>(a) <math>a = -3, b = -1</math></p> <p>(b) <math>a = 2, b = -3</math></p> <p>(c) <math>a = 0, b = 2</math></p> <p>(d) <math>a = 2, b = 3</math></p>	1
7.	<p>The domain of the function <math>f(x) = x/(x^2 + 3x + 2)</math> is</p> <p>(a) <math>[-2, -1]</math></p> <p>(b) <math>\mathbb{R} - \{1, 2\}</math></p> <p>(c) <math>\mathbb{R} - \{-1, -2\}</math></p> <p>(d) <math>\mathbb{R} - \{2\}</math></p>	1

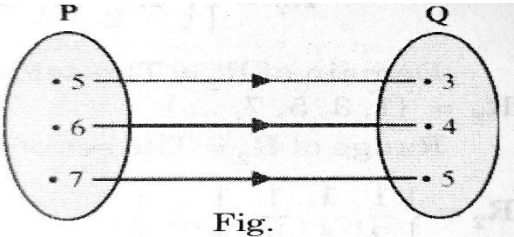


8.	<p>The range of <math>f(x) = \sqrt{25 - x^2}</math> is</p> <p>(a) <math>(0, 5)</math></p> <p>(b) <math>[0, 5]</math></p> <p>(c) <math>(-5, 5)</math></p> <p>(d) <math>[1, 5]</math></p>	1
9.	<p>The domain and range of the real function <math>f</math> defined by <math>f(x) = (4 - x)/(x - 4)</math> is given by</p> <p>(a) Domain = <math>\mathbb{R}</math>, Range = <math>\{-1, 1\}</math></p> <p>(b) Domain = <math>\mathbb{R} - \{1\}</math>, Range = <math>\mathbb{R}</math></p> <p>(c) Domain = <math>\mathbb{R} - \{4\}</math>, Range = <math>\{-1\}</math></p> <p>(d) Domain = <math>\mathbb{R} - \{-4\}</math>, Range = <math>\{-1, 1\}</math></p>	1
10.	<p>The domain and range of the function <math>f</math> given by <math>f(x) = 2 -  x - 5 </math> is</p> <p>(a) Domain = <math>\mathbb{R}^+</math>, Range = <math>(-\infty, 1]</math></p> <p>(b) Domain = <math>\mathbb{R}</math>, Range = <math>(-\infty, 2]</math></p> <p>(c) Domain = <math>\mathbb{R}</math>, Range = <math>(-\infty, 2)</math></p> <p>(d) Domain = <math>\mathbb{R}^+</math>, Range = <math>(-\infty, 2]</math></p>	1
11.	<p>Let <math>R = \{(x, y) : x, y \in \mathbb{Z}, x^2 + y^2 \leq 4\}</math> is a relation in <math>\mathbb{Z}</math>, then domain of <math>R</math> is:</p> <p>a) <math>\{0, 1, 2\}</math></p> <p>b) <math>\{0, -1, -2\}</math></p> <p>c) <math>\{-2, -1, 0, 1, 2\}</math></p> <p>d) None of these</p>	1
12.	<p>In the set <math>R</math> of real numbers, two relations are:</p> $R_1 = \{(x, y) : x, y \in R \text{ and } x^2 + y^2 \leq 25\}$ $R_2 = \{(x, y) : x, y \in R \text{ and } y \geq \frac{4}{9}x^2\}$ <p>Then domain and range of <math>R_1 \cap R_2</math> is:</p> <p>a) <math>[-3, 3], [0, 5]</math></p> <p>b) <math>[-3, 3], [-5, 5]</math></p> <p>c) <math>[-3, 4], [0, 5]</math></p> <p>d) <math>[3, 4], [0, 5]</math></p>	1



13.	<p>What will be the output of <math>\sqrt{-1}</math> if the function in the machine is <math>f(x) = x^2</math></p> <p>Image: Function machine</p>  <p>a) 1 b) 0 c) -1 d) 1</p>	1
14.	<p>Let <math>R</math> be a relation from a set <math>A</math> to a set <math>B</math>, then</p>  <p>a) <math>R = A \cup B</math> b) <math>R = A \cap B</math> c) <math>R \subseteq A \times B</math> d) <math>R \subseteq B \times A</math></p>	1
15.	<p>If <math>f\left(x + \frac{1}{x}\right) = x^2 + \frac{1}{x^2}</math>, then <math>f(x) = ?</math></p> <p>a) <math>x^2</math> b) <math>x^2 - 1</math> c) <math>x^2</math> d) <math>x^2</math></p>	1
16.	<p>If <math>[x]^2 - 5[x] + 6 = 0</math> where <math>[\ ]</math> denotes the greatest integer function:</p> <p>a) <math>x \in [3,4]</math> b) <math>x \in (2,3]</math> c) <math>x \in [3,2]</math> d) <math>x \in [2,4)</math></p>	1
17.	<p>Let <math>f(x) = x</math>, <math>g(x) = \frac{1}{x}</math> and <math>h(x) = f(x) \cdot g(x)</math>, then <math>h(x) = 1</math> for:</p> <p>a) <math>x \in R</math> b) <math>x \in Q</math> c) <math>x \in R - Q</math> d) <math>x \in R, x \neq 0</math></p>	1
18.	<p>The range of the function <math>f(x) = \frac{x+2}{ x+2 }, x \neq -2</math> is:</p> <p>a) <math>\{-1, 1\}</math> b) <math>\{-1, 0, 1\}</math> c) <math>\{1\}</math></p>	1



	d) $(0, \infty)$	
19.	<p>Assertion(A) : If <math>(x + y, 3) = (5, x - y)</math> then <math>x = 4</math> and <math>y = 1</math>  Reason(R) : Two ordered pairs are equal if and only if their corresponding elements are equal</p> <p>a) Both A and R are true and R is the correct explanation of A  b) Both A and R is true but R is not the correct explanation of A  c) A is true but R is false  d) A is false but R is true</p>	1
20.	<p>The figure shows a relationship between the set P and Q. Which of the following is true?</p>  <p>Fig.</p> <p>a) Domain of <math>R</math> is <math>\{5, 6, 7\}</math>  b) Range of <math>R</math> is <math>\{3, 4, 5\}</math>  c) In roster form <math>R = \{(5, 3), (6, 4), (7, 5)\}</math>  d) All of these</p>	1



**ANSWERS:**

Q. NO	ANSWER	MARKS
1.	c	1
2.	d	1
3.	a	1
4.	b	1
5.	d	1
6.	b	1
7.	c	1
8.	b	1
9.	c	1
10.	b	1
11.	C	1
12.	A	1
13.	C	1
14.	C	1
15.	C	1
16.	D	1
17.	D	1
18.	A	1
19.	A	1
20.	d	1