

# LAKSHYA (JEE)

## Relations and Functions

**DPP-03**

- Let  $A = \{2, 3, 5\}$ ,  $B = \{10, 12, 15\}$ , then which of the following is a function from  $A$  to  $B$ ?  
 (A)  $\{(2, 10), (2, 12), (2, 15)\}$   
 (B)  $\{(2, 10), (3, 12), (3, 15)\}$   
 (C)  $\{(2, 10), (3, 10), (5, 10)\}$   
 (D)  $\{(2, 10), (3, 12), (3, 15), (5, 15)\}$
- Which of the following is a function?  
 (A)  $\{(x, y) : y = |x|; x, y \in \mathbf{R}\}$   
 (B)  $\{(x, y) : y^2 = x; x, y \in \mathbf{R}\}$   
 (C)  $\{(x, y) : x^2 + y^2 = 1; x, y \in \mathbf{R}\}$   
 (D)  $\{(x, y) : x^2 - y^2 = 1, x, y \in \mathbf{R}\}$
- If  $f$  is function such that  $f(0) = 2$ ,  $f(1) = 3$ ,  $f(x+2) = 2f(x) - f(x+1)$ , then  $f(5)$  is  
 (A)  $-3$  (B)  $-5$   
 (C)  $7$  (D)  $13$
- Let  $A = \{1, 2, 3\}$  and  $B = \{2, 3, 4\}$ , then which of the following is a function from  $A$  to  $B$ ?  
 (A)  $\{(1, 2), (1, 3), (2, 3), (3, 3)\}$   
 (B)  $\{(1, 3), (2, 4)\}$   
 (C)  $\{(1, 3), (2, 3), (3, 3)\}$   
 (D)  $\{(1, 2), (2, 3), (3, 4), (3, 2)\}$
- If  $f(x+y, x-y) = xy$ , then the arithmetic of  $f(x, y)$  and  $f(y, x)$  is  
 (A)  $x$  (B)  $y$   
 (C)  $0$  (D)  $(x^2 - y^2)$
- Let  $W$  denotes the set of words in the English dictionary. Define the relation  $R$  by  $R = \{(x, y) \in W \times W\}$ , the words  $x$  and  $y$  have at least one letter in common, then  $R$  is  
 (A) Reflexive, not symmetric and transitive  
 (B) Not reflexive, symmetric and transitive  
 (C) Reflexive, symmetric and not transitive  
 (D) Reflexive, symmetric and transitive
- If  $S$  is defined on  $\mathbf{R}$  by  $(x, y) \in S \Leftrightarrow xy, \geq 0$ . Then  $S$  is \_\_\_\_\_.  
 (A) an equivalence relation  
 (B) reflexive only  
 (C) symmetric only  
 (D) transitive only
- For  $n, m \in \mathbf{N}$ ,  $n/m$  means that  $n$  is a factor of  $m$ , the relation is.  
 (A) reflexive and symmetric  
 (B) transitive and symmetric  
 (C) reflexive, transitive and symmetric  
 (D) reflexive, transitive and not symmetric
- Let  $R$  be the relation on the set  $\mathbf{R}$  of all real numbers defined by  $a R b$  iff  $|a - b| \leq 1$ . Then  $R$  is  
 (A) Reflexive and Symmetric  
 (B) Symmetric only  
 (C) Transitive only  
 (D) Anti-symmetric only
- Value of  $\frac{-4}{5} f(2, 3)$  if  $f(x+y, x-y) = xy$ , is \_\_\_\_\_

## ANSWERS

1. (C)
2. (A)
3. (D)
4. (C)
5. (C)
6. (C)
7. (A)
8. (D)
9. (A)
10. (1)



**\*Note\*** - If you have any query/issue

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