Chapter 1 Relations and Functions

Question 1:

Let A = {1, 2, 3} and consider the relation R = {1, 1), (2, 2), (3, 3), (1, 2), (2, 3), (1,3)}. Then R is

(a) reflexive but not symmetric

(b) reflexive but not transitive

(c) symmetric and transitive

(d) neither symmetric, nor transitive

Question 2:

The function f : R → R defined by f(x) = 3 – 4x is

(a) Onto

(b) Not onto

(c) None one-one

(d) None of these

Question 3:

If f : R → R, g : R → R and h : R → R is such that f(x) = x2, g(x) = tanx and h(x) = logx, then the value of [ho(gof)](x), if x = π√2 will be

a) 0

(b) 1

(c) -1

(d) 10

Question 4:

How many distinct relations can be defined on the set A = {1,2,3}?

(a) 29

(b) 23

(c) 9

(d) 26

Question 5:

If an operation is defined by $a*b = a^2 + b^2$, then (1*2)*6 is

(a) 12

(b) 28

(c) 61

(d) None of these

Question 6:

Let E = {1,2,3,4} and F = {1,2} Then, the number of onto functions from E to F is

(a) 14

(b) 16

(c) 12

(d) 8

Question 7.

If A, Band C are three sets such that $A \cap B = A \cap C$ and $A \cup B = A \cup C$. Then

(a) A = B

(b) $A = C$

(c) $B = C$

(d) $A \cap B = C$

Question 8:

If f: $R \to R$ be given by $f(x) = (3 - x3)1/3$, then fof(x) is

(a) x1/3

(b) x3

(c) x

(d) (3 – x3)

Question 9:

Let f , g : $R \to R$ be defined by $f(x) = 3x + 1$ and $g(x) = x2 - 2$, $\forall x \in R$, respectively. Then, f o g is

(a) 9x2 + 6x – 1

(b) 3x2 – 5

(c) 9x2 – 6x – 3

(d) 3x2

Question 10:

Number of binary operations on the set {a, b} are

(a) 10

(b) 16

(c) 20

(d) 8

Answers

Question	Answer
1	(a) reflexive but not symmetric
2	(a) Onto
3	(a) 0
4	(a) 29
5	(c) 61
6	(a) 14
7	(c) B=C
8	(c) x
9	(b) 3x2 – 5
10	(b) 16