





10. If  $f(x) = (x-1) / (x+1)$  then what is  $f\{f(x)\}$  ?
- (a)  $x$                       (b)  $-x$                       (c)  $-1/x$                       (d) None
11. The domain of the function  $f(x) = 1/\sqrt{|x| - x}$  is –
- (a)  $[0, \infty)$                       (b)  $(-\infty, 0)$                       (c)  $[1, \infty)$                       (d)  $(-\infty, 0]$
12. Let  $A = \{a, b, c, d\}$  and  $B = \{x, y, z\}$  what is the number of elements in  $A \times B$ ?
- (a) 6                      (b) 7                      (c) 12                      (d) 64
13. If  $A = \{1, 2\}$   $B = \{2, 3\}$   $C = \{3, 4\}$  then what is the cardinality of  $(A \times B) \cap (A \times C)$ ?
- (a) 8                      (b) 6                      (c) 2                      (d) 1
14.  $f(xy) = f(x) f(y)$  is true for all –
- (a) Polynomial functions                      (b) Trigonometric functions  
(c) Exponential functions                      (d) Logarithmic functions
15. The range of the function  $f(x) = 1/(2 - \sin 3x)$  is –
- (a)  $(1/3, 1)$                       (b)  $[1/3, 1]$                       (c)  $[1/3, 1)$                       (d)  $[1, 1/3]$
16. If  $f(x) = ax/(x+1)$ ,  $x$  is not  $-1$  then for what value of  $a$  is  $f[f(x)] = x$ ?
- (a)  $\sqrt{2}$                       (b)  $-\sqrt{2}$                       (c) 1                      (d) -1