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KCET ONLINE TEST-22, MAY-2020  **MATHEMATICS**  **TIME: 45Mins MARKS: 30**

**TOPIC**: **SETS, RELATIONS & FUNCTIONS.**

1. **If  and  then**

(a)  (b) 

(c)  (d) None of these

1. **If  then **

(a)  (b) 

(c)  (d) 

1. **Sets *A* and *B* have 3 and 6 elements respectively. What can be the minimum number of elements in *A* ∪ *B***

(a) 3 (b) 6

(c) 9 (d) 18

1. **If  and *B* = , then  contains**

(a) One point (b) Three points

(c) Two points (d) Four points

1. **If  is a multiple of 3] and  is a multiple of 5], then *A* – *B* is ( means complement of *A*)**

(a)  (b) 

(c)  (d) 

1. **If  then  is**

(a) {(2, 4), (3, 4)} (b) {(4, 2), (4, 3)}

(c) {(2, 4), (3, 4), (4, 4)} (d) {(2,2), (3,3), (4,4), (5,5)}

1. **In a college of 300 students, every student reads 5 newspaper and every newspaper is read by 60 students. The no. of newspaper is**

(a) At least 30 (b) At most 20

(c) Exactly 25 (d) None of these

1. **Let *A* = {1, 2, 3, 4, 5}; *B* = {2, 3, 6, 7}. Then the number of elements in (*A*  × *B*) ∩ (*B* × *A*) is**

(a) 18 (b) 6

(c) 4 (d) 0

1. **Let *A* = {1, 2, 3}, *B*  = {1, 3, 5}. *A* relation  is defined by *R* = {(1, 3), (1, 5), (2, 1)}. Then  is defined by**

(a) {(1,2), (3,1), (1,3), (1,5)} (b) {(1, 2), (3, 1), (2, 1)}

(c) {(1, 2), (5, 1), (3, 1)} (d) None of these

1. **Let *R* be the relation on the set *R* of all real numbers defined by *a R b* iff . Then *R* is**

(a) Reflexive and Symmetric (b) Symmetric only

(c) Transitive only (d) Anti-symmetric only

1. **With reference to a universal set, the inclusion of a subset in another, is relation, which is**

(a) Symmetric only (b) Equivalence relation

(c) Reflexive only (d) None of these

1. **Let *R* be a relation on the set *N* of natural numbers defined by *nRm* ⇔ *n* is a factor of *m* (*i.e., n*|*m*). Then *R* is**

(a) Reflexive and symmetric (b) Transitive and symmetric

(c) Equivalence (d) Reflexive, transitive but not symmetric

1. **Let *R* and *S* be two non-void relations on a set *A*. Which of the following statements is false**

(a) *R* and *S* are transitive ⇒ *R* ∪ *S* is transitive (b) *R* and *S* are transitive ⇒ *R* ∩ *S* is transitive

(c) *R* and *S* are symmetric ⇒ *R* ∪ *S* is symmetric (d) *R* and *S* are reflexive ⇒ *R* ∩ *S* is reflexive

1. **Let a relation *R* be defined by *R* = {(4, 5); (1, 4); (4, 6); (7, 6); (3, 7)} then  is**

(a) {(1, 1), (4, 4), (4, 7), (7, 4), (7, 7), (3, 3)} (b) {(1, 1), (4, 4), (7, 7), (3, 3)}

(c) {(1, 5), (1, 6), (3, 6)} (d) None of these

1. **Let *R* be a relation on the set *N* be defined by {(*x*, *y*)| *x*, *y* ∈ *N*, 2*x* + *y* = 41}. Then *R* is**

(a) Reflexive (b) Symmetric

(c) Transitive (d) None of these

1. **If  for , then **

(a) 1 (b) 2

(c) 3 (d) 4

1. **If  satisfies , for all  and , then  is**

(a)  (b) 

(c)  (d) 

1. **Suppose  is defined by , then  and **

(a)  (b) {0}

(c)  (d) 

1. **If , then**

(a) *f* is continuous but not derivable at  (b) 

(c)  (d) *f* is not derivable at 

1. **If  and  are given by  and  for each , then **

(a)  (b) 

(c) *Z* (d) *R*

1. **For a real number  denotes the integral part of *x*. The value of**

** is**

(a) 49 (b) 50

(c) 48 (d) 51

1. **If function ;  and , then the domain of *gof* is**

(a)  (b) 

(c)  (d) 

1. **The domain of the function  is**

(a)  (b) 

(c) ]0, 1[ (d) None of these

1. **The domain of definition of the function  given by  is**

(a) (0, 1] (b) [0, 1]

(c)  (d) 

1. **Let  and  the minimum value of for a given *b*. As *b* varies, the range of *m*(*b*) is**

(a) [0, 1] (b) 

(c)  (d)

1. **The range of the function  is**

(a) {1, 2, 3, 4, 5} (b) (1, 2, 3, 4, 5, 6)

(c) {1, 2, 3, 4} (d) {1, 2, 3}

1. **Let  and  (*x* is measured in radians). Then *x* lies in the interval**

(a)  (b) 

(c)  (d) 

1. **Which of the following binary operations is commutative**

(a) \* on *R*, given by 

(b) *o* on *R*, given by 

(c)  on *P*(*S*), the power set of *a* set *S* given by 

(d) None of these

1. **Let *S* be a finite set containing *n* elements. Then the total number of binary operations on *S* is**

(a)  (b) 

(c)  (d) 

1. **Define \* is defined on the set of real numbers by . Then the operation \* is**

(a) Commutative but not associative

(b) Associative but not commutative

(c) Neither commutative nor associative

(d) Both commutative and associative