Examrace

Sets YouTube Lecture Handouts: Set Notations, Relationship of Sets, Operations, Laws of Sets

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Sets: Union, Intersection, Disjoint, Subset, Superset, Equal, Null, Empty, Universal

Set Notations

- By enumeration or description
  - S={2,3,4)
  - I = {x | x is positive integer}
  - I is set of all numbers x, such that x is positive integer
  - Set is finite number of elements , not ordered
  - $2 \epsilon S$

Relationship of Sets

- Equal
- Disjoint
- Subset/Superset
- Null or empty set (different from {0})
- Universal set
- 2 sets – some element in common but some are peculiar (so neither equal, nor disjoint, nor subset)
  - If set as n elements – then total 2^n subsets are formed

Operations

- Union
- Intersection
- Complement

- Universal

Laws of Set Operations

- Commutative Law a+b=b+a or $a \times b = b \times a$
- Associative law: a+(b+c)=(a+b)+c
- Distributive law: $a(b+c) = (a \times b)+(b \times c)$
  - Commutative $A \cup B = B \cup A$ or $A \cap B = B \cap A$
  - Associative $A \cup (B \cup C) = (A \cup B) \cup C$
  - Distributive $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

-Mayank

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