## **RELATIONS AND FUNCTIONS**

## EXAMPLES OF ARROW DIAGRAMS

**Ex.1** State whether each of the following arrow diagrams define a function or not. Justify your answer.



- **Sol.** A function is a relation between each element of its domain and a unique element in codomain. Since element c does not have a image f is not a function
- **Ex.2** Does the following arrow diagram represents a function?



- **Sol.** Yes. Since Every element in A has an image in Set B that is each element of A is related to each element of B.
- **Ex.3** Does the following arrow diagram represents a function?



**Sol.** An arrow diagram is a function when all the elements of one set is associated to only one element of the second set.

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The given arrow diagram from A to B is a function because every element from Set A is associated with only one element of Set B.

**Ex.4** Does the following arrow diagram represents a function?



- **Sol.** Yes. Since every element of set A has one and only one image in set A. In fact this mapping is one-one.
- **Ex.5** Does the following arrow diagram represents a function?



- Sol. A function is a set of ordered pairs in which each x-element is from the first set and has only ONE y-element associated with it from the Set B.
  The given arrow diagram from A to B is not a function because 6 from Set A is associated with both 7,8 from Set B.
- **Ex.6** Does the following arrow diagram represents a function?



**Sol.** An arrow diagram is a function when all the elements of one set is associated to only one element of the second set. The given arrow diagram from A to B is a function because every element from Set A is associated with only one element of Set B.