Homework Set 1

c d

e f

g h

a b

**1.Find the size and order of the diagraph.**

Solution:

Here arc = {(b , a) ,(b , d) , (a , g) , (c , a) , (d , c) , (e , c) , (f , d) , (f , e) , (f , g) , (g , h) , (g , e) , (h , b) , (h , f)}

Size of diagraph = number of arc = 13

Nodes = { a , b , c , d , e , f , g , h}

Order of diagraph = number of arc = 8

**2.Write the tail set and head set of the digraph.**

Solution:

We know dominating vertex is called the tail.

Hence tail set = { a , b , c , d , e , f , g , h}.

Also, dominated vertex is called head

Hence head set = { a , b , c , d , e , f , g , h}

**3.Decide whether the digraph is simple or not.**

Solution:

We know a diagraph is called simple digraph if there exist at most one arc from one particular vertex u to

another particular vertex v. Hence we see in the diagraph at most one are from one particular vertex to

another particular vertex . Hence given diagraph is simple diagraph.

**4.Sketch the diagram of each of a simple , multi and pseudo diagraph with the same size and order**.

Solution:

Simple diagraph

a e

c d

b f

Size = { (a , b) , (a , c) , ( b , c ), (c , d ) , (d , f) , (f , e) , ( d , e) } = 7

Order = { a , b , c, d , e , f}

Multi diagraph

a e

c d <

b > f

Size ={ (a , b) , (a , c) , (b , c) , (c , d ) , (d , f) , (f , d) , ( d , e) } = 7

Order = { a , b , c, d , e , f}

Pseudo diagraph

> a e

c d

b f

Size = { (a , a) , (a , c) , (b , c) , (c , d ) , (d , f) , (f , e) , ( d , e) } = 7

Order = { a, b , c , d , e , f } = 6