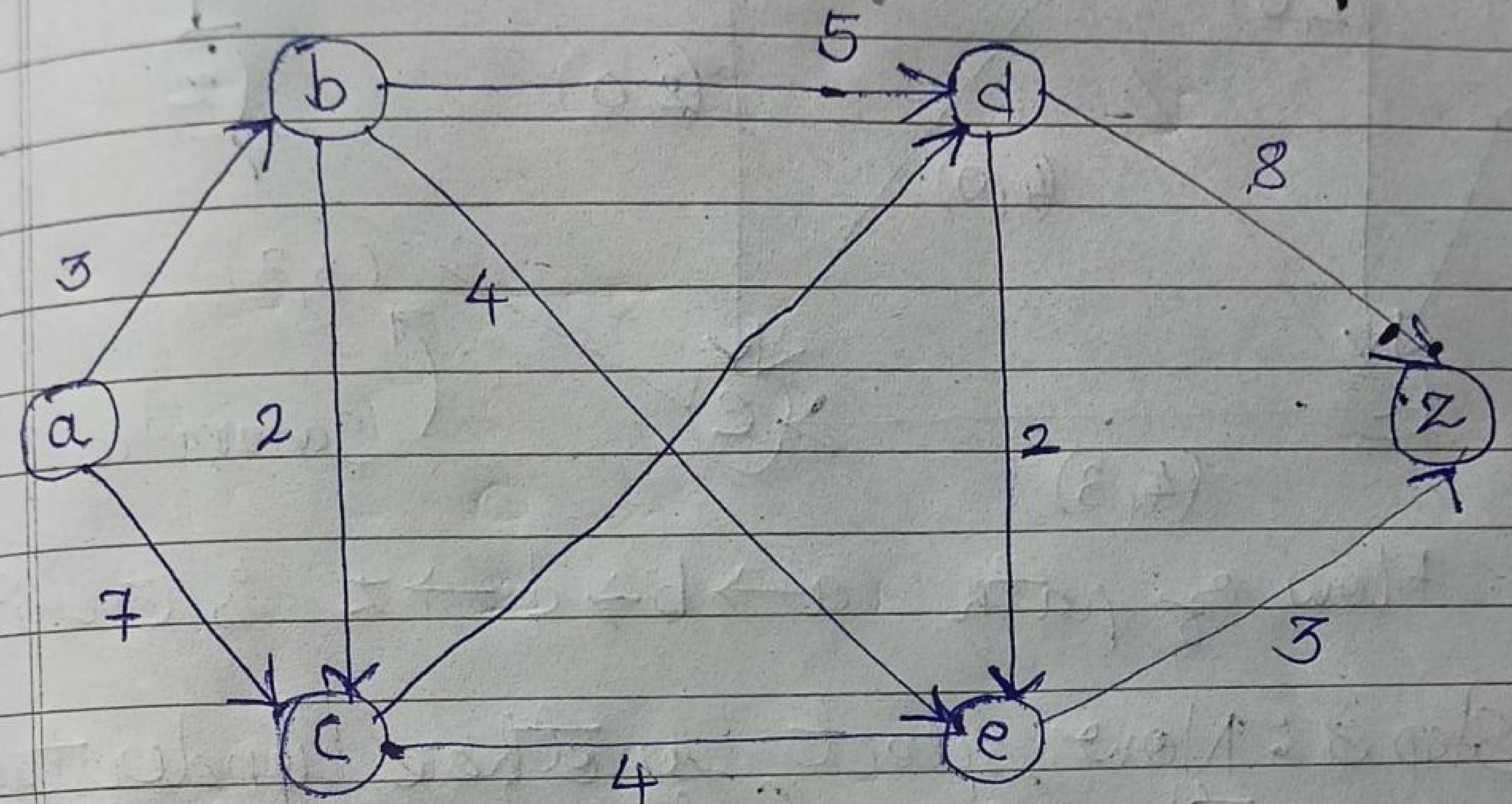
11 Yashraj Deepak Devrat

Page No.
Date: / /

Q3 Using the labelling procedure to find the maximum flow in the transport network in the following figure. Determine the corresponding minimum cut



① step ①: Select any arbitary path of given network.

Lets select: ⓐ→ⓒ→ⓔ→ⓩ

Initially, flow on selected path in zero. Then apply unit flow, till we get any saturated path.

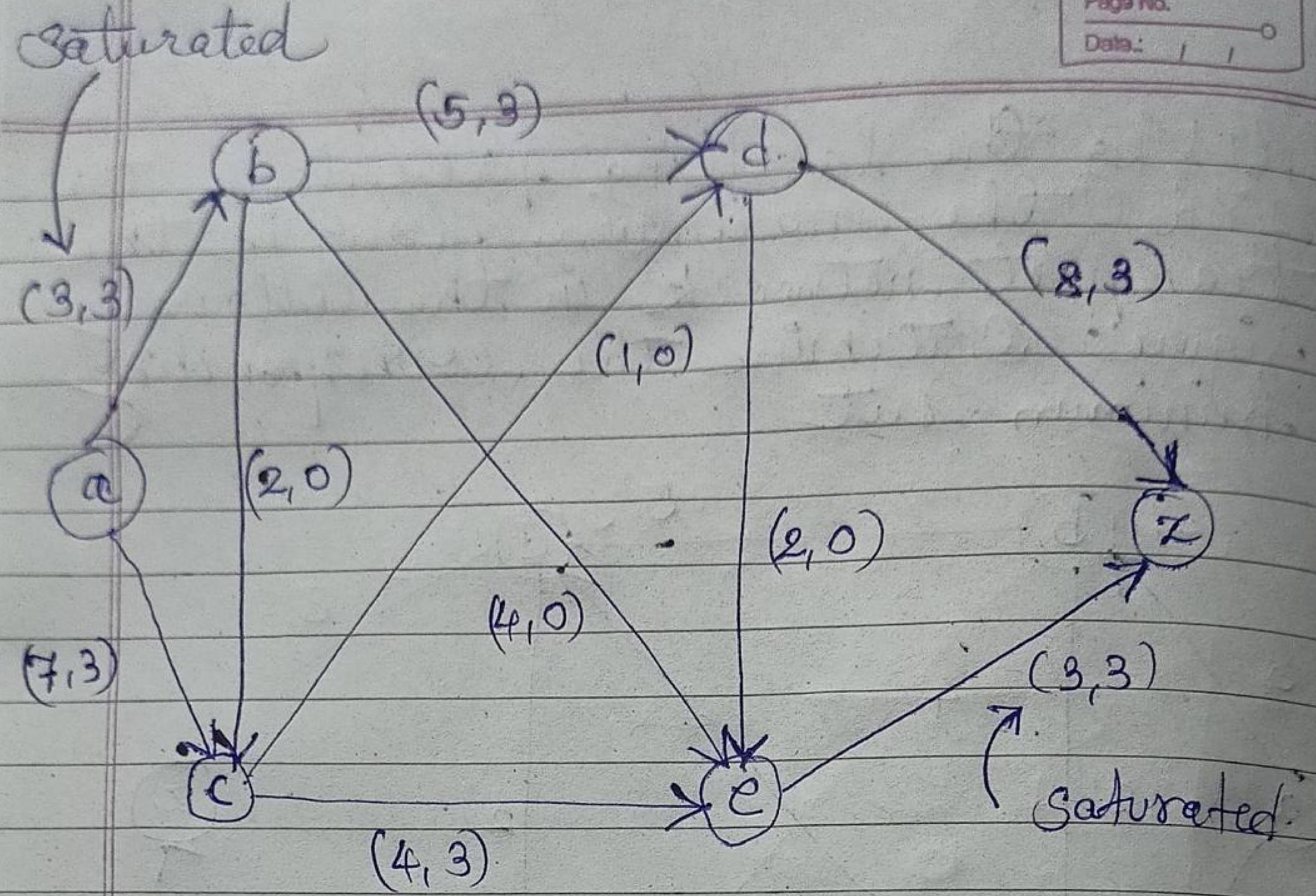
Edge e-z will get saturated first so ~~on~~ unit flow 3 ~~of~~ ⓔ → ⓩ.

Here,

The flow of path $a \to c \to e \to z = 3$ unit.

② step 2: Now select path 'abdz'. When we apply unit flow ~~then~~ and increment one at a time, then edge 'ab' gets saturated, when flow will reach to 3 units

$F_{ab} = C_{ab}$

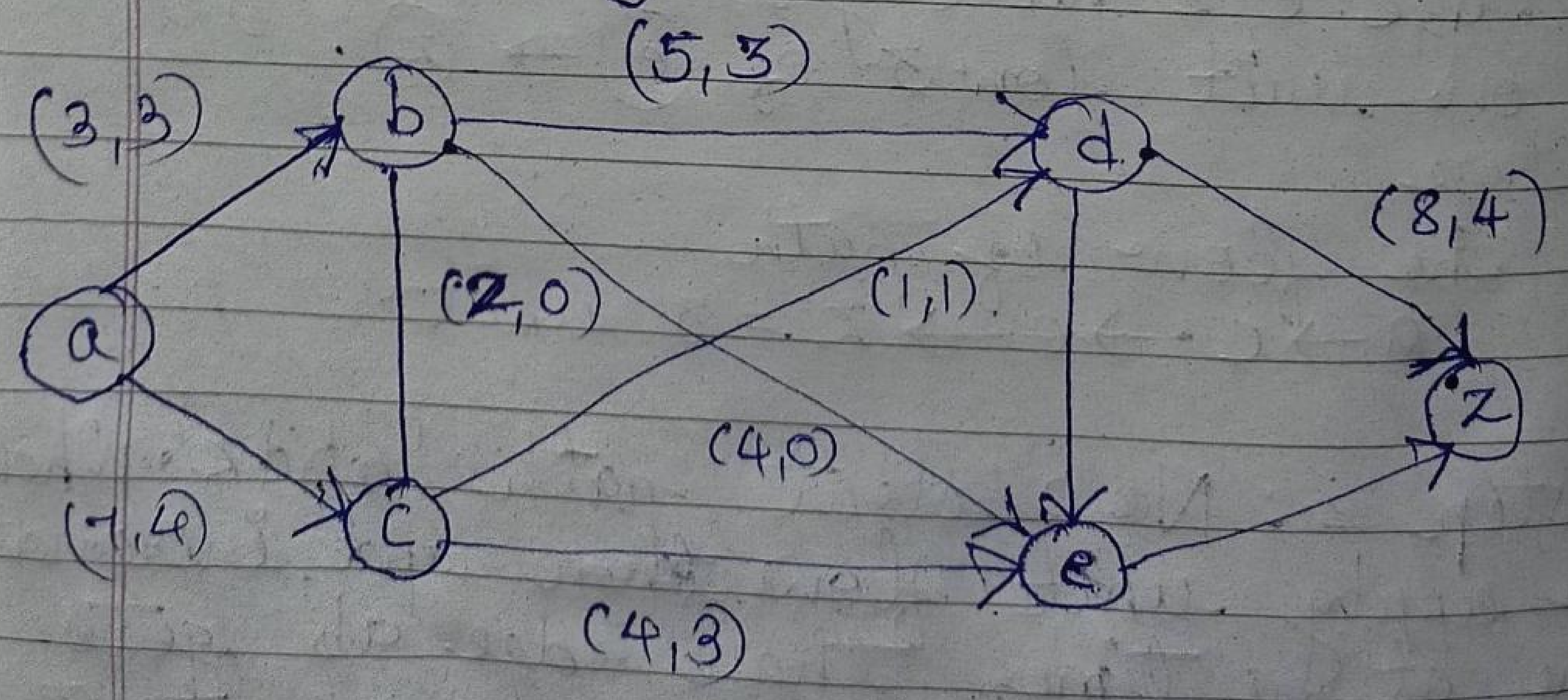


Flow of path. $a \to b \to d \to z$ is 3 unit

Step 3: Now select another understand path, where (flow < capacity) and apply unit flow we get saturated path.

Path $\Rightarrow a \to c \to d \to z$.

Edge "cd" get saturated when unit flow reached. to "1" unit flow of "cd" of cd = Capacity of cd.

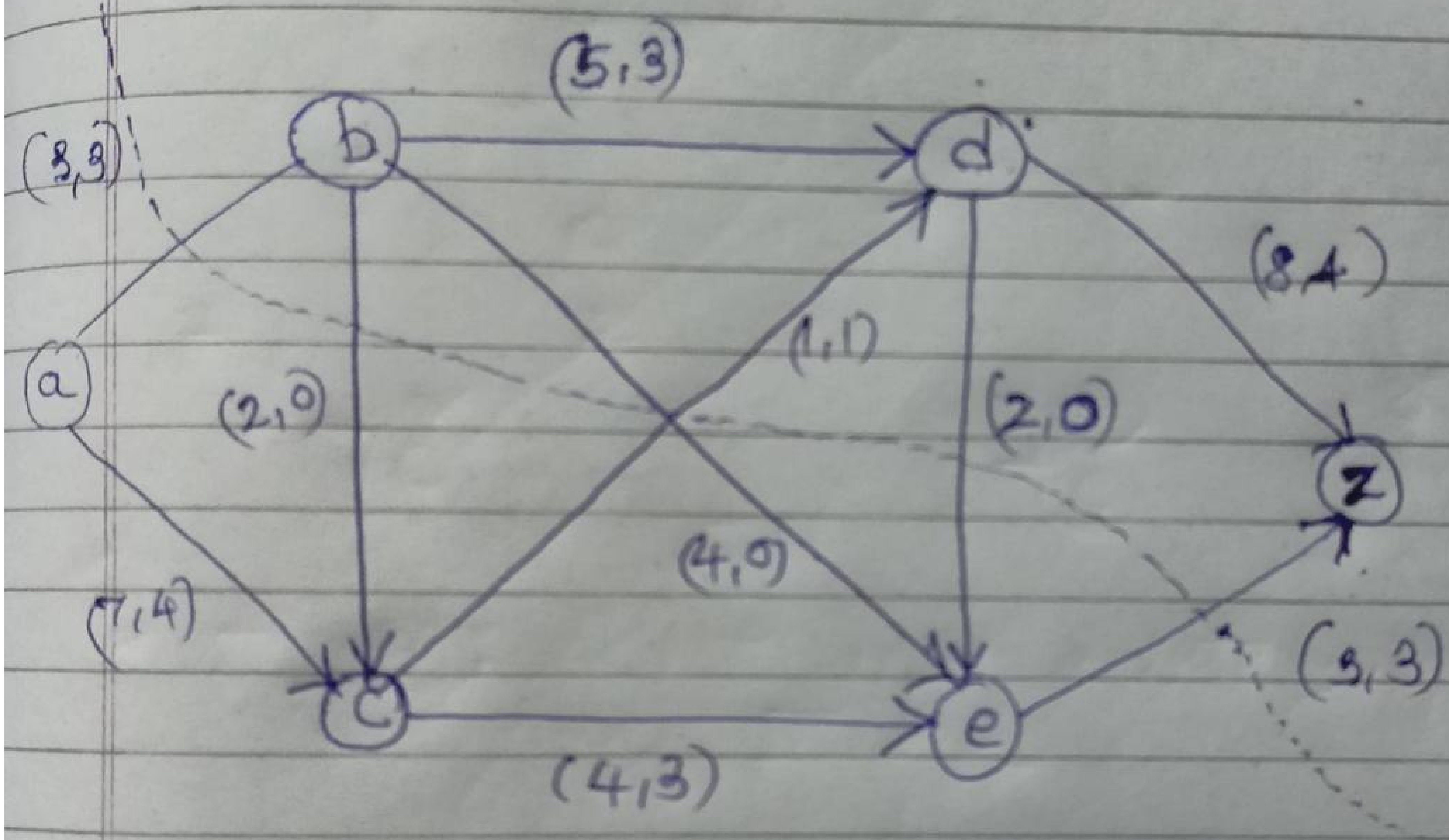


Page No.
Date.: / /

Flow of path, $a \to c \to d \to z$.
flow = 1 unit.

According to max flow - min cut theorem

Maximum flow in the network = minimum cut.



Maximum flow in the network $= F_{ez} + F_{ab} + F_{cd} = 3+3+1$
$= 7$ units

Capacity of Cut $= C_{ab} + C_{ez} + C_{cd}$
$= 3+1+3$
$= 7$ units.

Minimum Cut = 7

Scanned by TapScanner