

2. a) Here,

Given Array is

$$A = [5, 1, 4, 3, 6, 2, 7, 1, 3]$$

$$n = 9 \Rightarrow \frac{3n}{4} = 6.75$$

Now, let's take different pivots as  $x$  as follows:

$x$	$L$	$E$	$R$
1	$\{ \}$	$\{1, 1\}$	$\{5, 4, 3, 6, 2, 7, 3\}$ X
2	$\{1, 1\}$	$\{2\}$	$\{5, 4, 3, 6, 7, 3\}$ ✓
3	$\{1, 2, 1\}$	$\{3, 3\}$	$\{5, 4, 6, 7\}$ ✓
4	$\{1, 3, 2, 1\}$	$\{4\}$	$\{5, 6, 7\}$ ✓
5	$\{1, 4, 3, 2, 1, 3\}$	$\{5\}$	$\{6, 7\}$ ✓
6	$\{5, 1, 4, 3, 2, 1, 3\}$	$\{6\}$	$\{7\}$ X
7	$\{5, 1, 4, 3, 6, 2, 1, 3\}$	$\{7\}$	$\{ \}$ X

$\therefore$  From above table, it is seen that the good pivots are  $\{2, 3, 4, 5\}$ .

2. b) From d)  $n = 9$  and no. of good pivots = 4  
 $\therefore$  no. of good pivots  $\geq \frac{n}{2} = \lfloor \frac{9}{2} \rfloor = 4$