

Section 2 :

Question-1:

This is a recursive Procedure taking 3 arguments, an array of integer and two other integer value

```
procedure f(var A : array of integer; L, R: Integer);
```

This procedure starts with declaring variables I and J.

At the beginning, A Loop initiates which runs until $I \geq R$. The value of L and R is assigned to the Pre-declared variable I and J respectively. The summation of L and R shifts right by 1. The resulting value is used as given array index and the value of array stored in new declared variable P

AS:

Let R =5, L=6

$P := A[(R+L) \text{ shr } 1]$

Here $R + L = 5+6 = 11$. The shift right value of 11 by 1 is 22. ($11 \gg 1 = 5$)

So, $P := A[5]$;

Then , another loop is initiated until $I > J$. Inside , two separate loop rund: the value of I increment until $A[I] < P$ and the value of J decrement until $A[J] < P$. After, If the new value of I is less than or equal to J, the value of $A[i]$ and $A[j]$ swapped and the value of I incremented and J decremented.

Ending the Second loop, the function Itself is called again if $L < J$ and then the value of I is stored in L.

The Loop ends.