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section- B

Ans. 2) SCAN Disk Scheduling Algorithm :-

```
#include <stdio.h>
int main()
{
  int queue [25], n, headposition, i, j, k, seek=0,
    maxrange, difference, temp, queue1 [20],
  queue2 [20], temp1=0, temp2=0;
    float averageseekTime;
    printf ("Enter the maximum range of
              Disk :");
    scanf("%d", &maxrange);
    printf ("Enter the number of queue
                requests :");
      scanf("%d", &n);
    printf ("Enter the initial head position:");
     scanf ("%d", &headposition);
     printf ("Enter the disk positions to be
              read(queue) :");
      for (i=1; i<=n; i++)
    {
      scanf ("%d", &temp);
     if (temp > headposition)
```

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```
{
  queue 1 [temp1] = temp;
     temp1++;
  }
   else
  {
    queue 2 [temp2] = temp;
     temp 2++;
  }
}
   for (i=0; i<temp1 - 1; i++)
  {
    for (j = i+1; j<tm1; j++)
  {
     if (queue 1 [i] > queue 1 [j])
  {
       temp = queue 1 [i];
       queue1 [i] = queue1 [j];
        queue1 [j] = temp;
  } } }
   for (i=0; i< temp2 - 1; i++)
  {
    for (j = i+1; j<temp2; j++)
  {
     if (queue 2 [i] < queue 2 [j])
     {
        temp = queue 2 [i];
        queue 2 [i] = queue 2 [j];
         queue 2 [j] = temp;
  } } }
```

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```
for (i=1,j=0; j<temp1; i++, j++)
{
  queue [i] = queue1[j];
}
queue [i] = maxrange;
for (i=temp1+2, j=0; j<temp2; i++, j++)
{
  queue [i] = queue 2[j];
}
queue [i] = 0;
queue [0] = headposition;
for(j=0; j<=n; j++)
{
  difference = absolute value (queue [j+1] -
                               queue [j]);
  seek = seek + difference;
printf ("Disk head moves from position
        %d to %d with seek %d \n",
    queue [j], queue [j+1], difference);
}
averageSeekTime = Seek / (float) n;
printf ("Total Seek Time = %d\n", seek);
printf ("Average Seek Time = %f\n",
        averageSeekTime);
```

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```
}
int absolutevalue (int x)
{
  if(x>0)
  {
    return x;
  }
  else
  {
    return x*-1;
  }
}
```

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```
Enter the maximum range of Disk: 99
Enter the number of queue requests: 7
Enter the initial head position: 24
Enter the disk positions to be read(queue): 12
26
24
4
42
8
50
Disk head moves from position 24 to 26 with Seek 2
Disk head moves from position 26 to 42 with Seek 16
Disk head moves from position 42 to 50 with Seek 8
Disk head moves from position 50 to 99 with Seek 49
Disk head moves from position 99 to 24 with Seek 75
Disk head moves from position 24 to 12 with Seek 12
Disk head moves from position 12 to 8 with Seek 4
Disk head moves from position 8 to 4 with Seek 4
Total Seek Time= 170
Average Seek Time= 24.285715

--------------------------------

Process exited after 88.03 seconds with return value 0
Press any key to continue . . .
```