1.(a)Insert the following 10 numbers, 10, 4, 2, 7, 9, 6, 1, 15, 20, 17 into an initially empty B-tree with the minimum degree 2. Intermediate steps are required.

First input 2 4 10 to the root.

Diagram in first step:

|2|4|10|

Next, split the root as the root is full. Push up the middle (4)

Diagram in Second step:

|7|10|

2

4

Next, insert 9 right node of the root.

Diagram in Third step:

4

|7|9|10|

2

Next, split the right node of the root and push up middle(9)

To the root and insert the 6

Diagram in fourth step:

4|9

2

|6|7|

10

Next, insert 1 to the left node of the root.

Diagram in fifth step:

4|9

|1|2|

|6|7|

10

Next, insert 15 and 17 to the right node of the root.

Diagram in sixth step:

|4|9|

|6|7|

|1|2|

10|15|17

Finally, split the right node of the root and push 15 up to the root and insert 20 to the right node of the root.

Diagram in sixth step:

|4|9|15

|17|20|

|1|2|

110

|6|7|