**Question :**

Give traces by showing how the keys E A S Y Q U E S T I O N are sorted with bottom-up mergesort.

**Solution :**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **E** | **A** | **S** | **Y** | **Q** | **U** | **E** | **S** | **T** | **I** | **O** | **N** |
| **A** | **E** |  |  |  |  |  |  |  |  |  |  |
|  |  | **S** | **Y** |  |  |  |  |  |  |  |  |
|  |  |  |  | **Q** | **U** |  |  |  |  |  |  |
|  |  |  |  |  |  | **E** | **S** |  |  |  |  |
|  |  |  |  |  |  |  |  | **I** | **T** |  |  |
|  |  |  |  |  |  |  |  |  |  | **N** | **O** |
| **A** | **E** | **S** | **Y** |  |  |  |  |  |  |  |  |
|  |  |  |  | **E** | **Q** | **S** | **U** |  |  |  |  |
|  |  |  |  |  |  |  |  | **I** | **N** | **O** | **T** |
| **A** | **E** | **E** | **Q** | **S** | **S** | **U** | **Y** |  |  |  |  |
|  |  |  |  |  |  |  |  | **I** | **N** | **O** | **T** |
| **A** | **E** | **E** | **I** | **N** | **O** | **Q** | **S** | **S** | **T** | **U** | **Y** |